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SELECTED PAPERS.

Some account of a case of Obstinate Vomiting, in which an attempt was made to Prolong Life, by the injection of blood into the Veins. By JAMES BLUNDELL, M. D. *Lecturer in conjunction with Dr. Haighton, on Physiology and Midwifery, at Guy's Hospital.*

[From the Medico-Chirurgical Transactions, Vol. X.]

IN a former paper, which was read before the Medical Chirurgical Society in the spring of the present year, (1818) I ventured, on the authority of the experiments there related, to recommend, in cases of desperate inanition, the injection of blood by the syringe. Since these experiments were published, the operation has been already once performed; and as a narration of the circumstances may, perhaps, be of service to some, who, at this moment, may stand in need of the remedy, I hasten to lay them before the Society.

A poor fellow,* of the name of Brazier, between thirty and

* Should this history appear prolix, the Society will have the goodness to remember, that in our total ignorance of the operation, every fact becomes important.

——————————*Audi!*

Nulla unquam de vitâ hominum cunctatio longa est.

Human life is at stake; and surely the infirm may, under such circumstances, reasonably exact from the profession, those minute investigations for their safety, which the sternest of the satirists has vindicated to a slave.

forty years of age, lately a patient in Guy's Hospital, was attacked with disease about the stomach; which, as subsequent dissection proved, depended upon a scirrhosity of the pylorus. It would be impertinent to my present purpose to enter into a detailed account of the various symptoms of his long illness; it may be remarked, however, that for the last few weeks, his bowels were seldom open without the use of injections, and that during the last three or four months, he had vomited the greater part of his food. The region of the stomach was frequently examined, but though he was emaciated in a high degree, neither tenderness, nor enlargement, nor hardness could be distinguished; he had no pain there, and there was nothing in the appearance of the matter vomited, which indicated ulceration: so that on the whole there was some little ground for hoping that the symptoms might, perhaps, not arise from a scirrhosity of the pylorus.

When I saw this man at the request of Dr. Cholmely, under whose care he was, the defect of sanguification had so completely exhausted him, that his dissolution was hourly expected. The veins of the limbs, I mean their trunks, were evidently shrunk; the pulse was small and feeble, and very compressible, and so indistinct, that it could not be numbered without some difficulty; the vascular system seemed nearly empty. With these marks of inanition, the other symptoms corresponded. The temperature of the limbs was falling, and the mind sinking into a state of insensibility; the muscles were become so feeble that he spoke in whispers, and found a difficulty even in stirring his limbs; and his whole person, the limbs and face especially, was so excessively emaciated, that when he lay in the bed, so that only the face and arms were exposed, he really reminded one of an animated human skeleton, covered merely by the skin. I am aware that this figure may appear a little too fanciful, but it certainly conveys no exaggerated idea of the appearance which it is designed to illustrate. To these remarks I may add, that the complexion was slightly jaundiced, and that the skin, on various parts of the limbs especially, was discoloured, with mottled patches of a livid blue tint, which seemed rather to arise from a gather-

ing of blood in the minuter veins, than from actual extravasation.

When it was first proposed to me by Dr. Cholmely, that the injection of blood should be tried in this instance, as the "only and doubtful" remedy, I felt considerable hesitation. The case was every way unfavourable, at least to the splendid success of the operation; and I could not but think it unwise, by an adventurous attempt to prolong the life of a solitary individual, to risk the character of a remedy, which, if adopted into practice, would hereafter, in all probability, preserve the lives of numbers. On seeing the patient, however, my reluctance presently gave way; his truly helpless and hopeless appearance was such as might have moved compassion, even in those who are most familiar with disease. He was evidently at the point of death. Transfusion alone could give him a chance of life. He was himself willing that the attempt should be made. Even if the operation should fail, it would probably disclose facts which might be of advantage to others. These were weighty considerations, and we determined to operate.*

For this purpose, about an inch of the right cephalic vein was laid bare, a little above the elbow, for the vessels were too much contracted to admit of the operation below it, and a longitudinal incision, about a line in length, was made with the lancet. Some gentlemen present undertaking to supply a few ounces of blood, about an ounce and a half was taken up by the syringe, and immediately infused into the vein in a gradual stream. This operation was repeated ten times, so that between twelve and fourteen ounces of blood were introduced, in this manner, in the course of thirty or forty minutes.

No very obvious changes, either morbid or of a salutary nature, made their appearance during the operation. The brain, nerves, and muscles, remained undisturbed; the respiration continued unaltered; the temperature of the body scarcely rose; and even the pulse, with the exception of a slight increase in its size, and a dubious variation of three or four

* Dr. Cholmely, Dr. Back, Dr. Wright, Mr. James South, Mr. Callaway, Mr. John South, Mr. Thomas Cox, Mr. Pollard, and several other gentlemen, were present at the operation.

beats in a minute, underwent no obvious change. It should be observed, however, that the livid discoloration of the hands, already described, gave way to a more healthy complexion; the same change, though unattended to, had probably taken place on other parts of the skin. In reply to repeated inquiries, the patient himself declared, that he percived no unusual sensation whatever; and at the close of the operation, when speaking doubtfully of his improvement, he expressed himself in a more audible whisper than he had made use of before.

In performing the injections, some little niceties were attended to, which it may not be improper to notice. The different portions of blood were not injected in immediate succession, but at irregular intervals of five or six minutes, so as to give time for each portion to be distributed over the vascular system, before a fresh supply was poured in. In one instance, however, two measures, in another three were thrown in, at intervals of a few seconds only, in such a manner, that from three to five ounces of blood were infused, in the course of two or three minutes, yet without occasioning any obvious derangement.

To facilitate the operation, the vein was laid bare, and a probe was passed beneath it at the under extremity. As this was a first attempt, it was expected that various embarrassing circumstances might occur; and it was therefore deemed a prudent, though perhaps not altogether a necessary precaution, to obviate those, at least, which might arise from the concealment of the vein.

The little pipe, easily introduced, was secured in the vessel without the assistance of a ligature, merely by the pressure of the finger; and in order to expel the air, it was, previously to its insertion, filled with water, and retained there, on familiar principles, by placing the tip of the finger over the superior orifice.*

The syringe and tubule formed together the whole of the apparatus; and the nozzle of the syringe, sliding readily over the smooth extremity of the tube, they could be separated or

* This piece of sleight was suggested by Mr. Henry Cline, and answered so well, on repeated trials, that I think it worth notice. The exclusion of air from the apparatus is important.

united without any difficulty. This greatly simplified the operation; for the blood was taken up from the cup, and poured into the vein, with as much ease and much in the same manner too, as the anatomist infuses his injection. Two minutes scarcely elapsed during this transfer of the bloood from one arm to the other.

It is scarcely necessary to add, that the syringe was made warm;* that the apparatus was air-tight; and that the greatest care was taken, that none of the air should make its way into the veins by finding a lodgment in the syringe or pipe.

The performance of the whole operation was materially assisted by Mr. Henry Cline; and though I am conscious that his talents are too well appreciated by the profession, to require any eulogy from me, I cannot forbear expressing the pleasure which I feel on this occasion, in associating my name with his. To his instructions I stand indebted for some of my earliest surgical information, and in him I view with respect, the union of an extensive knowledge of established surgery, with that chastened and well balanced spirit of caution and enterprise, which is of all others the best fitted to improve it. I could enlarge, but I forbear; the language of panegyric would be here misplaced. What I have said he will pardon, as the well earned tribute of unfeigned esteem, as far removed from the selfishness, as it is from the satire of adulatory commendation.

Although the operation, which was performed two or three hours after mid-day, produced very little effect at the time, in the course of the evening, the patient experienced a very salutary change from it. His body became warmer; his respiration remained regular; and his pulse, which by this time had acquired nearly double its former size, beat with great regularity about eighty-eight times in a minute. This was its number before the operation was performed. While I was making these observations, I was very well pleased to hear one of the hospital attendants pointing out a reddening of the extremity

* Is not the blood animated? And if so, would not a cool apparatus be preferable, as tending less to exhaust the vital principle? Blood in a cup coagulates more speedily at a higher than at a low temperature. Experiment must decide this question.

of the nose, and the increasing ruddiness of the lips, pallid and bloodless before, as well as the greater alacrity which our patient manifested, when he attempted to stir his limbs. When asked respecting his feelings, the poor fellow himself replied, "I am better," "much better," "less fainty;" and these words were certainly pronounced with a firmer utterance, and in a louder whisper, than I had heard him use before.

All these favourable symptoms continued during the night, and the greater part of the next, the second day; indeed at eight in the morning, he thought himself stronger than on the evening preceding. At this time his limbs, as well as the trunk, were remarkably, though perhaps not preternaturally warm; he passed a stool without an injection, and felt a degree of appetite, which he had not experienced for two or three weeks before; for he pressed his attendants to supply him with a little food, and drank, at intervals, about half a pint of porter. On the whole, the symptoms seemed to indicate a slight degree of excitement. Probably this excitement was analogous to that, which arises from taking food after long-continued fasting; the blood irritating the empty vessels, on much the same principle, as the aliment does the famished stomach.

It was not till the evening of this day, the 27th of September, that he began to droop; but he sank so rapidly in the course of the night, that, on the following morning, he seemed reduced to as low an ebb as before the operation. As the day, the third, went forward, he passed an involuntary stool, and suffered a recurrence of his retchings. At nine in the evening, his extremities were become cool; his pulse was disposed to intermit, and his mind, perhaps, to waver; and these symptoms gradually increasing upon him, he died at eleven o'clock, about fifty-six hours after the injection, apparently exhausted from inanition.

It deserves particular remark, that although all the marks of exhaustion, which had preceded the operation, recurred on this day; not a single additional symptom made its appearance, with the exception of a sort of white exudation, observed on the skin of the face, and giving it the appearance of having been dusted with a few grains of coarse powder. This efflorescence, seemingly emitted with the perspiration, was in all

probability of a saline nature; but owing to some misunderstanding on the part of the attendants, none of it was preserved for chemical examination.

On the morning after death, the body was examined by Mr. Callaway. From this inspection, it appeared that the *pylorus* was really scirrhous, together with the upper part of the duodenum, and that this indurated mass made a slight pressure upon the gall-ducts. Here too the passage for the food was contracted, and its inner surface irregular, though it did not appear that even the internal membrane itself had been destroyed by ulceration.

The vein on which the operation had been performed, was of course examined with peculiar care, to ascertain whether inflammation of it had been excited. The only unusual appearance observed, however, was a darkish red discoloration of the inner membrane, for about half an inch above, and a line or two below the wound. This was seated beneath the surface of the vessel, and, at first glance, looked like the stain of a coagulum which had formed in this part of it. There was no thickening of the coats of the vein, no effusion of adhesive matter, no appearance whatever of a widely spreading inflammation; above and below the spot, the vessel appeared perfectly healthy, as it still does in the preparation of it now before me. If there had been any genuine inflammation at all, it certainly had been slight, and was confined to the vicinity of the wound.

Remarks.

There are various reflections which suggest themselves on considering this case, some of which I may be permitted to notice.

1. It will be observed, in the first place, that this poor fellow fell a victim to exhaustion, notwithstanding the supply of blood which he had received, about fifty-six hours before. When we are considering this fact, however, it must not be forgotten, that the quantity of the injection was very small in comparison with the high degree of inanition. It is wonderful what large quantities of blood may be lost, without immediate danger to life, provided the blood-vessels have time to accommodate

themselves to the evacuation. Repeated venesections afford us a familiar instance of this, as well as bleedings from the womb.

I am indebted to Mr. Lewis Hensley, formerly a student at the united hospitals, for an authentic and extremely intelligent account of two cases of copious blood-letting, which it may be proper to notice here. The patients were two robust countrymen, of the middle size, and laboured under thoracic inflammation. From each of these men, Mr. Hensley, himself, drew off by venesection more than a gallon and a half of blood, he weighed it carefully, in the course of five days; and during the whole of this time they took little aliment besides barley-water; yet both eventually recovered, without any alarming symptoms of inanition. Brazier was a man but little below the middle size. In his case the waste of the blood had been very gradual; and at the time when we operated, it had been carried to the highest pitch compatible with the remains of life. Under these circumstances, I believe a gallon and a half to be the lowest estimate of the deficiency. Indeed, when the extreme emaciation of the patient, and the contraction of the vascular system are considered, together with the gradual manner in which the blood had been wasted away, we shall not, perhaps, appear guilty of exaggeration in rating it much higher; possibly it more nearly amounted to two gallons than one and a half. But even if we take the lowest estimate, twelve or fourteen ounces will appear a very inadequate supply; nor is it to be wondered at, that, after a great part even of this small pittance had been consumed for nutrition, in the course of the next twenty-four hours, the patient should relapse into that state of inanition from which the operation had so imperfectly liberated him.

In alluding to the causes of this exhaustion, I have said little, it will be observed, of the excitement which occurred the day after the operation; because, although this was so inconsiderable as to be in a manner dubious, its effects in contributing to wear out the little remains of the patient's strength, are too obvious to require a comment.

2. The foregoing reflections naturally lead us to inquire, whether the life of our patient would not have been further

prolonged, if a larger quantity of blood had been infused at first, or if the injection had been early repeated; for instance, on the second day? Upon this point there may now be room for a difference of opinion; but it must, I conceive, be admitted, that with the information which we possessed at the time of the injection, the method of operating adopted was upon the whole the most prudent.

It is hardly necessary to remark, that it would have been very unwise to have thrown a large quantity of blood, for example two or three pints of it, into the veins at once. The patient was exhausted; the heart and vessels were feeble; their capacity was become contracted; we had no former experience of the effects of the operation; unexpected and fatal symptoms might, perhaps, have been occasioned by it.

Nor can we deny, that it would have been scarcely less imprudent to have repeated the operation upon the second day. In the memoir already alluded to, I have taken occasion to shew that dogs, resuscitated by transfusion, may, under certain circumstances, die a day or two afterwards.* With this fact before us, it seemed a necessary precaution that we should defer the second injection till the third day at least. It was thus only that we could ascertain whether any symptoms prohibiting a second trial of the operation would ultimately arise from the first.

But the history of this operation has a further claim on our attention, as it elucidates some important points connected with the injection of blood.

1. In the first place it shows that the operation is very easy. A little tube and a syringe were the only novel instruments required; and although this injection was a first attempt, not a single difficulty occurred.

2. It further proves, at least with all the force of a solitary fact, that the infusion of human blood by the syringe is unattended with danger, provided the blood be not suffered to lie at *least* above a minute in the cup. No unfavourable change was produced by the operation at the time, nor was there I

*When the human blood, or that of the sheep has been substituted in large quantities for their own.

think a single morbid symptom observed during the next fifty or sixty hours which could be fairly attributed to it.

3. To this I may add, that the case gives additional strength to the opionion that human blood, although transmitted through the syringe, may still retain a positive fitness for the animal purposes. In this instance it will be observed, that the strength was recruited by it; that the pulse became larger and the temperature of the body warmer. The man himself felt that he was revived; and I think the spontaneous evacuations from the bowels, and the returns of appetite, especially as they seem to have arisen from an improvement of the alimentary secretions, are further proofs of the little injury which the blood had sustained from passing the syringe. Whether blood injected in this manner, so as to supply the vessels directly, remains so far unimpaired in its qualities, that it will supersede the necessity of a supply by sanguification, the case did not enable us to ascertain, but the doctrine is plausible; there is nothing in it obviously at variance with sound reasoning, and the general tenor of the facts related certainly gives some little countenance to it. Observation, however, and experiment, the sole basis of a solid physiology, can alone solve this problem; nor can any labour, I conceive, be ill laid out which is employed in investigating a point of such importance. And are there not at this moment many patients in our hospitals sinking under inanition, who, if the experiment were explained to them, would be grateful that it should be tried? And would not this experimental remedy secure to some of them at least the only remaining chance for life? And is there a principle in the physiology of nutrition which it is of more importance to establish? Who can tell the various diseases in the management of which it may perhaps be applied? Half the labour laid out by Spallanzani on a single dissertation, would probably establish the affirmative; and I had almost added, that the naturalist who fairly succeeds in proving it, whether by observations on the human subject, or experiments on the brute, will be found, perhaps, hereafter, when this discovery has been matured, and applied to all the medical purposes to which it is adapted, to have conferred no inconsiderable benefit on mankind. This

consideration offers a noble incentive to exertion, and cannot want its due influence over an elevated and truly benevolent mind.

Case of Bronchocele, in which the Superior Thyroideal Artery was successfully tied. By HENRY COATES, ESQ. *Member of the Royal College of Surgeons, and Surgeon of the Salisbury Infirmary. Communicated by* MR. ASTLEY COOPER.

[From the Medico-Chirurgical Transactions. Vol. X.]

AMONG the greatest improvements in modern surgery, none have exceeded, or perhaps equalled, that of the surgery of arteries. To the enterprising genius of modern surgeons are we indebted for the information which enables us to perform operations on them successfully, in cases which were formerly considered impossible, and by which many valuable lives have and will be saved.

The following case is recorded, not for any extraordinary difficulty in the operation, but in order to show that in some cases the thyroideal arteries may be tied with advantage; not that such cases are common, nor would I state any thing to encourage the juniors of our profession in attempting this operation, unless the vessels, as in this case, be sufficiently apparent, and readily within reach.

My friend and colleague, Dr. Grove, having mentioned to me a case of an out-patient of his, of the Salisbury Infirmary, with bronchocele, in which the tumor was pressing on the trachea, and very considerably impeding respiration, and the superior thyroideal arteries being large, and pulsating, suggested the possibility of their being tied with advantage. Elizabeth Spratt, æt. 17, was in consequence admitted an in-patient. The thyroid glands were large, and pressed on the trachea, so as to render respiration and deglutition extremely difficult: and the noise she made was so great that it might be heard at a very considerable distance. The superior thyroideal arteries were large, and pulsated strongly. Her general health was extremely good.

It was agreed, on consultation, that a ligature on the artery afforded the best chance of advantage to the patient. Accordingly, on the 29th of December, I cut down on the left superior thyroideal artery, and having dissected it from its accompanying nerve by means of a bent probe, I passed under the vessel a small round ligature, which was drawn moderately tight and tied. She passed a tolerable night. The next day she complained of head-ache, and there was some swelling of the neck and side of the head, with increased difficulty of swallowing, and some febrile symptoms. These, however, gave way to the abstraction of blood, and antimonial medicines; and in three days she was relieved from all unpleasant symptoms.

The ligature separated on the ninth day, and the wound was completely healed on the fourteenth day. Her breathing was much improved, and the size of the tumour reduced nearly half; and she was so materially benefited, that she was discharged on the 14th February, quite well.

She was to have returned to the infirmary should any of her unpleasant symptoms have recurred; but I presume that the tumor has not again increased, and that she remains so well that she is unwilling to submit to any further operation.

Observations on the Relaxed Rectum. By THOMAS CHEVALIER, ESQ. F. R. S. & F. L. S. *Surgeon Extraordinay to the Prince Regent, and Consulting Surgeon to the Westminster General Infirmary.*

[From the Medico-Chirurgical Transactions. Vol. X.]

A RELAXED state of the coats of the intestinal canal admitting of excessive distension, is not of unfrequent occurrence. In most cases of peritoneal inflammation, whether acute or chronic, it is one of the earliest symptoms which arises, and affords a remarkable illustration of the pathological fact, that an inflammatory excess of action in the vessels of a part, is always accompanied with a loss of its tone. In this instance

the inflammation is aggravated by the distension, and that distension rapidly increases in consequence of the adhesions which form between the convolutions of the intestines, and which, by arresting their peristaltic motion, tend greatly to disable them from expelling their contents.

Parts of the canal, however, may become relaxed, and over distended in consequence of that relaxation, with little or no inflammation, and probably arising from a loss of tone simply. The large intestines seem more subject to this derangement than the small ones, and the transverse arch of the colon is especially liable to it. The extreme distension of the abdomen in tympanites is chiefly produced by the extraordinary degree in which this part is dilated. A less degree frequently accompanies ascites, and sometimes occasions an apprehension in the mind of the physician that there is a much larger quantity of fluid in the abdomen than is actually accumulated. In such instances, the fluctuation is more obscurely perceived, and it is chiefly at the lower part of the abdomen: the enlargement is greater above the navel than below it, and when the upper part of the belly is struck gently by the hand, it gives that peculiar sensation and sound which a membranous cavity filled with air communicates. This circumstance deserves the most careful attention on the part of the surgeon, who might otherwise be induced to tap the patient, and might puncture the intestines by his trocar. I believe, however, where this state of the colon exists, that the ascites is very seldom the principal disease. I have repeatedly objected to operate in such cases, having always found in those which I have had an opportunity of examining after death, that the quantity of fluid has been much less than had been expected, and that it has been irregularly effused among partial adhesions, which have been excited by the irritation of some visceral disease. If it should be thought advisable in such a case to puncture the abdomen, the operation should be performed by the cautious introduction of a lancet through the linea alba below the navel, and not by a trocar.

Dilatations occasionally take place on the sigmoid flexure of the colon, the sacculated subdivisions of which prevent their dilated portions from being equally distended. From this cause scybala are often formed of the excrementitious

matter, and may be retained for a considerable time by the valvular projections of its internal coat, although a tolerably regular evacuation of fæces may go on. These are well known to give rise to dysenteric affections, and inflammations of the inner surface of the bowel; in relieving many of which, copious and repeated glysters are of the most essential service, by softening and washing out the hardened substance.

That the lower part of the rectum is frequently so relaxed as to prolapse externally, is well known; but it does not appear to have been much observed by practitioners that it is also subject, without any external protrusion whatever, to excessive dilatation within the pelvis, and to a semiprolapsus of its upper part into the lower. But this is a state of that bowel which frequently occurs. It is often productive of very distressing symptoms; and it is especially to be remarked, that it is a common cause of that obstinate and habitual costiveness, under which some persons continually labour.

The rectum commences from the colon, close to the last vertebræ of the loins, and passing down into the hollow of the sacrum, it takes the curvature of that bone, in which it lies comparatively loose, invested anteriorly, but not posteriorly, by the peritoneum. When it reaches the os coccygis, it quits the peritoneum entirely, and is connected loosely by cellular membrane to the bladder, to the muscles of the perineum, to the levatores ani, the sphincter ani, and the common integument. This lower portion of the rectum is easily distensible; but while it is in a natural state, the peculiar sensibility of its internal surface speedily excites it, when moderately distended, unless the fæces are unnaturally hard, to expel its contents; and its muscular fibres are competent to enable it to do so, with a very moderate assistance from the action of the abdominal muscles. It is needless to say of how much consequence it is to the general health that the sensibilities of this important organ should remain unimpaired, and that strict attention should be paid to the regular performance of its functions: if this be long neglected, its natural sensibility becomes gradually diminished; it will remain overcharged for an undue time; the energy of its muscular fibres will become impaired, so that a more forcible exertion of the abdominal muscles will be re-

quired to expel the stools; and not unfrequently this will also be insufficient, without some medicine be taken to quicken the action of the whole intestinal canal.

Here perhaps, in a majority of cases, the evil stops. The calls of nature must be obeyed, and therefore persons who feel a difficulty in discharging the excretions regularly, are of necessity excited to employ those means which afford them the requisite assistance.

But in some instances, and these by no means rare, the lower part of the rectum becomes so frequently overloaded, and its irritability in consequence so much diminished, that it becomes excessively dilated, and almost loses the power of contracting upon its contents; the natural consent between that and its upper portion, which is covered by the peritoneum, and remains undilated, is thus weakened and further evil is induced. The superior portion of the rectum and the lower part of the colon, become also overloaded, and the deficiency in the action of these parts calling forth a greater exertion of the abdominal muscles, in the expulsion of the fæces, the upper, undilated portion of the rectum, is forced downwards into the lower and dilated portion, where it may be distinctly felt like a loose bag, of which it is sometimes difficult to detect the aperture; the finger or a bougie being more likely to get entangled at the rim of this elongated fold, than to pass exactly into the continuation of the tube.

It is under these circumstances that the chief evils and perplexities of such cases begin. For the harmony of action between the upper and lower portions of the rectum being destroyed, the stools, instead of being voided with that ease, and in that regular form and mass which is usual in a healthy state of the parts, are expelled with difficulty, in small and irregularly shaped pieces. The repeated efforts made for this purpose sometimes excite tenesmus, swelling of the hæmorrhoidal veins, and an increased secretion of mucus from the inner surface of the intestine; in men, the irritation is often communicated to the prostate gland, and neck of the bladder. In other instances, and especially in females, the parts become so relaxed as to allow of a sufficient accumulation of fæces to fill the whole pelvis; and how unconscious a patient may be of

such an accumulation, the following case, to which others might be added, will sufficiently shew.

A lady who was afflicted with cancer of the left breast, became affected with severe pain in the loins, which confined her to bed. She soon afterwards became unable to pass her urine, which was drawn off at proper intervals by a catheter. The state of her bowels was regularly inquired into, and she always replied that the evacuations were small in quantity, but frequent, and upon the whole, sufficient; and that this had been her ordinary habit for many years. After about a fortnight had elapsed in this way, her attendants noticed a peculiar appearance about the anus, which, on examination, was found dilated to the size of an half crown, by the protrusion of fæces, which had so completely stuffed the rectum, as entirely to choke up the pelvis; and although not hardened, were incapable, from their quantity, of being removed without the assistance of instruments.

Sometimes *hardened* fæces accumulate in a similar manner, and become, from their bulk, incapable of expulsion without artificial aid; and yet that which is softer may pass over this lump in daily evacuations, and thus conceal the real mischief.

In more confirmed cases of the disease, and in persons of a sedentary habit, other bad consequences arise. The upper portion of the rectum being forced down as has been described, by a half intus-susception upon the lower, becomes in time less competent to its own functions, and transmits the fæces irregularly. The lower portion of the colon participates in this difficulty, and is kept in a state of irritation. An obscure heavy pain is felt in the lower part of the loins and the region of the sacrum; and the difficulty and imperfection with which the stools are voided, often gives rise to a suspicion that there is a stricture formed in some part of the intestinal tube; and this suspicion, although entirely groundless, will be confirmed in the apprehension both of the patient and his attendant, if, on making an examination with a bougie, its point should be arrested, as it is very likely to be, in the edge or fold of the semiprolapsed portion of the gut.

Under these circumstances, an increased secretion of mucus from the surface of the colon may take place, to a consi-

derable amount, so as to collect in some of its sacculated portions, and to be voided in a large quantity; and as it then has often a yellowish appearance, it seems as if an abscess had burst, and its contents had been discharged by the anus. But the matter is more tenacious than true pus; it is not mixed with blood; that degree of relief and change from former feelings, which is always felt when an abscess breaks, is not experienced; the discharge does not go on regularly; it is seldom seen above twice or thrice, and then this symptom disappears. I have several times known more than half a pint of this purulent looking mucus so voided, and then there has been no more for several days, or but once, and in some instances it has not recurred at all. A circumstance of this nature is sure to attract the patient's attention, and if mild and demulcent aperients are given, and temporary symptoms properly treated, all goes off: and the patient becoming more vigilant over the state of his bowels than formerly, the parts affected may greatly recover their health and tone, and he may be better than he had been for a considerable time before this occurrence took place.

The state of the rectum I have now been describing, is most common to females, and to persons who, from their habits being generally sedentary, are more apt to overlook the irregularities of its action, and to defer obedience to the calls of nature. Under these circumstances, purgative medicines are mostly resorted to, and the intestinal canal is teased and pained, for the very defective action of that very part of it which is most remote from their influence. The general health also often suffers; all the evils arising from costiveness taking place, and hypochondriacal dejection and gloom oppressing the mind.

In cases of this kind, the principal and most certain relief is to be obtained from the proper employment of glysters, the composition of which is to be regulated by circumstances. At first those of a mild aperient nature should be preferred, and thrown up by a syringe; and these should be repeated *after regular intervals*, so as to re-accustom the rectum to empty itself in an *habitual* way. Gruel, the decoction of mallows, broth, or milk with some honey, will answer the purpose very well; but

more permanent good will be derived by using afterwards the infusion of chamomile, or the old decoction *pro fotu*, which, by gently stimulating the torpid surface of the bowel, may bring on a proper contraction of its coats. Where the very lowest part of the rectum continues so dilated as to allow the upper still to descend, from four to six ounces of a strong decoction of oak bark, or an infusion of galls, thrown up as gently as possible every night, will be attended with the most beneficial effects. If this be not readily retained, a little starch, or a few drops of tincture of opium, or both, may be added to it; and care should be taken at the same time so to regulate the diet, and medical treatment, that the upper part of the intestinal tube may be excited to due action, regularly, but not violently.

Should inflammation take place, which sometimes happens, at the prolapsed part, so as to consolidate the surfaces together, a permanent stricture or obstruction is formed, which, by the frequent irritation to which it must be unavoidably exposed, may take on a cancerous character, and be productive of the most disastrous effects.

A Memoir on some new Combinations of Prussic Acid. By his excellency the Count Le Maistre, of St. Petersburgh.

[From the Annals of Philosophy, for December, 1819.]

Ferruginous prussic acid, when assisted by heat, combines with different substances, which, while cold, do not exhibit any affinity for it; and all these combinations are blue, like prussiate of iron. Copper itself, whose dark carmine red prussiate is well known, is also capable of forming a blue prussiate according to the state of oxygenation in which it is, and by means of processes which will be explained in the course of this memoir. The following are these different combinations in the order in which they presented themselves to me during my experiments.

I. *Prussiate of Starch.*

While engaged in making a small quantity of the iodide of starch in a porcelain cup, I employed in the preparation water which contained prussiate of potash and muriatic acid in solution. The mixture which I exposed to the heat of a lamp remained colourless till the heat became sufficiently strong to dissolve the starch. It then suddenly assumed a very perceptible green colour. As I was aware of the substances contained in the mixture, I immediately repeated the experiment in such a way as to remove all suspicion of the presence of iron. I took 10 gr. of fine starch which I mixed with an ounce of the water of the Neva. I added 20 gr. of prussiate of potash, and boiled the whole in a matrass. The liquid became transparent, and remained colourless during the whole time of boiling. I then added muriatic acid, which made it immediately assume a green colour as if I had poured into it a solution of iron. The precipitate in 48 hours became of a fine deep blue. I repeated the experiment with different starchy substances, as arrow root, sago, potato starch, and always obtained the same result. Thus starchy bodies, when dissolved in water at the temperature of 212°, have the property of forming blue prussiates like iron.

II. *Prussiate of Gum Arabic.*

I made the same trials with some analogous substances. Ten grains of gum arabic and 20 gr. of prussiate of potash were dissolved and heated together in a matrass with an ounce of water. The mixture remained transparent and colourless during the boiling. Boiling muriatic acid made it pass to a deep green. The precipitate was abundant, and fell down rapidly.

The prussiate of gum is less black than pure prussiate of iron. It is insoluble in water, and in muriatic acid. Concentrated sulphuric acid dissolves it, and destroys the colour; but it appears again when the solution is diluted with water. The prussiate in that case precipitates with all its lustre, and when it is washed and dried, we cannot from its colour distinguish it from common prussian blue.

III. *Prussiate of Sugar.*

The same process and the same quantities being employed with sugar yielded likewise a blue prussiate, which was at first green, and which, when exposed to the air, assumed a lighter shade than the preceding blues.

To avoid useless repetitions, I shall merely say, that having experimented in the same way with solutions of gelatin, of cochineal, of tannin, of soap, and even of white wax melted and mixed with the prussiate of potash, on decomposing the prussiate by muriatic acid while boiling-hot, I always obtained blue prussiates; while none of these compounds could be formed at the temperature of the atmosphere.*

Of all these substances cochineal is the one which resists most the action of prussic acid, the combination not taking place till after half an hour's boiling. This colouring matter, which the mineral acids and alkalies do not decompose, becomes green by its union with prussic acid. The precipitate resembles the juice of herbs, and soon passes into a perfect blue. The residual liquid, when there is an excess of cochineal, preserves its red colour; the prussic acid taking only the quantity necessary for its saturation.

IV. *Prussiate of Charcoal.*

As all the substances of which I have spoken contain a great quantity of charcoal, it was natural to try the same thing with this last substance. To obtain a charcoal in a state of minute division, I charred white paper free from size by putting it into concentrated sulphuric acid, and exposing the acid to heat. The black matter thus formed was diluted with a great deal of water, and decanted without filtration into a matrass, which I placed over the flame of a spirit of wine lamp. I then poured into it while boiling a portion of prussiate of potash, and the mixture became dark green. The prussiate did not assume a blue colour till after eight days exposure to the air.

* It may be thought that these substances are coloured by the iron of the prussic acid as by a tincture; but the gum and starch become insoluble in water, which indicates a true combination, and the cochineal becomes green, and not violet.

That the paper may be completely charred by the sulphuric acid, it must be slightly moistened before being plunged into it.

This, however, was not a pure prussiate of charcoal; for as the sulphuric acid chars the paper without effervescence and without smell, this species of solution contains all the principles of the ligneous substance.

To obtain a pure prussiate of charcoal, I took 30 gr. of the charcoal of the birch which had remained for a fortnight in an alkaline ley. I pounded it while still moist upon an unpolished piece of glass, with concentrated sulphuric acid. I put altogether three ounces of water, and boiled the mixture in a matrass. I then added to the liquid 60 gr. of prussiate of potash, continued the boiling for about an hour, adding water in proportion as it evaporated. A dark-green prussiate was formed, which became blue after five or six days exposure to the air.

If the dried prussiate is not of as fine a blue as the best prussian blue, it must be repeatedly moistened and dried, which will produce the colour desired.

When the process was repeated with muriatic acid instead of sulphuric, the result was the same; but when newly formed charcoal was employed, no combination took place.

The formation of this prussiate was accompanied with frequent anomalies, depending doubtless on the different states in which the charcoal is at the time in which it is employed, and upon minute circumstances which I probably overlooked. If instead of boiling the mixture for an hour, as I have described, it be poured after two minutes boiling into a kettle furnished with a ground-stopper, and placed well corked in a stove heated to 122° or 144°, it will be found completely formed after an interval of eight or ten hours. I put my bottles in the evening into a Russian stove, and next morning found a green prussiate formed.

It cannot be doubted that if the charcoal could be presented to the prussic acid in a state of perfect solution, the combination would take place, instantly, as happens with the gums.

When the prussiate of charcoal is dried, it has a fine brilliant blue colour, like prussian blue containing alumina; which appears singular, if we consider the black colour of charcoal. It dissolves in cold sulphuric acid of commerce without losing

its colour. The solution appears green when the acid begins to act, as is the case with indigo; and when it is diluted with water, the prussiate precipitates.

If we employ very concentrated sulphuric acid, the colour disappears on solution, and the liquid becomes yellowish; but when water is added, the prussiate precipitates of its original colour. It is insoluble in water and in muriatic acid, which merely divides it.

These properties of prussiate of charcoal belong likewise to those of starch, gum arabic, and cochineal, which are probably of the same nature.

The analogy which exists between this prussiate and indigo is remarkable. They have both the same colour. The absorption of oxygen makes them both pass from green to blue. They are both soluble in sulphuric acid, and finally they are composed of the same principles; namely, of a great proportion of carbon combined with azote, hydrogen, oxygen, and iron; but in proportions, or, perhaps, only in an order of composition which gives them different properties.

After having formed blue prussiates with the oxide of carbon and several of its compounds, I thought of subjecting to the same process the earths which had not yet been united to this acid, and the simple substances which I could procure.

V. *Prussiate of Sulphur.*

As sulphur unites easily with potash, I formed a sulphuret with 10 gr. of flowers of sulphur and 20 gr. of prussiate of potash in a small matrass, which I heated by a spirit of wine lamp. When I thought that the sulphuret was formed, I broke the matrass in a vessel of boiling water mixed with muriatic acid. The sulphuret, which had acquired no colour, was decomposed in the water, and the prussiate of sulphur made its appearance in fine green flocks in the acid liquid. A few days are sufficient to give it a fine deep blue colour.

This prussiate has a green colour only when the sulphuret is made in close vessels. If it be made in an open crucible, and if it be allowed to burn for some time stirring it with a glass rod, the prussiate is blue the instant it is developed in the muriatic acid; so that the portion of the sulphur which burns is

sufficient to bring the rest to the point necessary for forming prussian blue. I shall prove afterwards that no prussiate becomes blue unless oxygen and iron enter as constituent parts of prussic acid.

The following process likewise furnishes a prussiate of sulphur of a very beautiful colour.

I boiled in water one part of hydrosulphuret of potash and one part of prussiate of potash. I added weak muriatic acid at a boiling temperature, which immediately produced the green combination. No sensible portion of sulphuretted hydrogen was developed.

VI. *Prussiate of Phosphorus.*

Phosphorus has a great deal of affinity for prussic acid. To produce a combination it is sufficient to boil some grains in a solution of prussiate of potash, and to pour muriatic acid into the liquid. It becomes muddy, and assumes a green colour. The boiling is to be continued till no more melted phosphorus can be seen at the bottom of the matrass. The prussiate has then the colour of Scheele's green, and in process of time becomes blue.

It would seem that phosphorus can unite in several proportions with prussic acid. If we employ a weak solution of prussiate of potash, the colour is less intense, and passes with difficulty to blue. If we employ a concentrated solution, and pure muriatic acid, the prussiate, when dried, is absolutely black, and becomes luminous. The excess of phosphorus burns slowly, and leaves a dark-violet coloured matter, which gradually changes into a perfect blue.

Prussiate of phosphorus, when well made, is more beautiful than prussiate of iron, and is neither purple nor greenish.

VII. *Prussiate of Gold.*

A solution of ducat gold diluted with much water, treated during its boiling with prussiate of potash, gave immediately a copious blue precipitate, which was deposited rapidly, and had a very fine colour.

VIII. *Prussiate of Silver.*

As all the nitric acid solutions have a tendency to give a

green shade to the prussiates derived from them, we obtain only an imperfect blue with nitrate of silver; but we get a very fine blue by operating on the muriate of silver newly precipitated by muriatic acid. It is washed upon the filter, and boiled in water, before it is coloured by light. Muriatic acid is added, and then prussiate of potash. A prussiate is formed of a clear and brilliant blue, which becomes gradually more intense. This is the prussiate of muriate of silver.

IX. *Prussiate of Tin.*

The disoxygenizing property of muriate of tin renders the formation of blue prussiates with it difficult; but we obtain them with facility when we operate upon the oxide of tin precipitated from the nitrate by an alkali, well washed, and employed while still moist. The process is the same as in the preceding experiment, excepting that the prussiate of potash must be added to the mixture before introducing the muriatic acid.

X. *Blue Prussiate of Copper.*

Copper presents the singular phenomenon of being able to furnish two permanent prussiates of different colours.

If we pour a strong solution of prussiate of potash on pure copper filings, and then add a sufficient quantity of muriatic acid to decompose the prussiate, and to dissolve a portion of the copper, the metal dissolved in presence of the prussic acid forms a very beautiful blue prussiate. This combination does not, like the preceding, depend upon the temperature. Heat merely increases the rapidity of its formation.

When we treat granulated tin in the same manner, we obtain likewise a blue prussiate, but we must employ nitromuriatic acid and heat.

XI. *Blue Prussiate of Mercury.*

To form the blue prussiate of mercury, the red oxide of that metal is boiled in water, and a solution of prussiate of potash previously decomposed by muriatic acid is added to it. The iron contained in the prussic acid changes its condition so as to become proper for forming the blue insoluble prussiate

of mercury; while the acid without iron forms a colourless soluble prussiate. This proves sufficiently that iron is a constituent part of the prussic acid employed in these experiments. The blue prussiate of mercury, when first formed, is light green, and passes slowly to blue by exposure to the air.

XII. *Prussiate of Iodine.*

If we boil iodine in a solution of prussiate of potash, adding muriatic acid, we obtain a blue prussiate with a shade of purple of the greatest beauty. When first formed, it is light green, and requires a long exposure to the air to give it a blue colour.

XIII. *Prussiate of Alumina.*

The opinion that alumina forms no combination with prussic acid is so generally established, that when I began my trials with this earth, I had little expectation of success. In fact the sulphate of alumina precipitated by prussiate of potash gives no colour either when cold or hot. However, I observed that when the salts in the mixture were concentrated, the alumina, after long boiling, assumed a very distinct blue colour. The following trial furnished me with a more complete combination.

I pulverized together equal parts of sulphate of alumina and prussiate of potash. I introduced them into a small matrass without water, and heated them over a spirit of wine lamp to cause them to melt in their water of crystallization. The mixture became blue as soon as it began to swell. I regulated the heat in order not to decompose the prussiate of alumina, and when the tint appeared to me equal through the whole mass, I diluted it with boiling water. The prussiate, which was of a light and dirty blue, immediately assumes a fine colour, and forms a copious precipitation similar to prussiate of iron; but which seems somewhat soluble in water, to which it gives a greenish tint.

As alumina has been long employed by the makers of prussian blue along with prussiate of potash without any such combination being observed, I repeated the same experiment several times to be certain of its accuracy, and I likewise made another experiment which appeared to me conclusive.

I precipitated the alumina from the sulphate by means of

carbonate of potash; I washed the earth on a filter, and dissolved it, while yet in a gelatinous state, in muriatic acid. I heated the solution, which was very acid, till it boiled, and then threw into it hot boiling prussiate of potash. The effect was the same as if it had been poured into a solution of protosulphate of iron. Instantly a very fine green colour was developed, which in two days was changed into an intense and perfect blue. We have seen that sulphate of alumina exhibits different phenomena, which is doubtless the reason why this compound has never been observed in the prussian blue manufactories.

Alumina then has the property of forming a blue combination with prussic acid, but only at a temperature not lower than 212°.

XIV. *Prussiate of Silica.*

To form this prussiate, I pounded in a glass mortar 50 gr. of white glass from a barometer tube with 150 gr. of calcined potash. I put the mixture into a covered crucible, and kept it red hot for an hour. A frit was formed, which was almost completely soluble in muriatic acid. I filtered the transparent and colourless solution, and raised it to a boiling temperature. I then added 40 gr. of prussiate of potash, which gave a deep-green colour to the liquid. After eight days exposure to the air, it became a blue prussiate.

The same process performed with pulverized quartz, prepared for porcelain, gave the same result. The prussiate of silica is blacker and less beautiful than prussiate of alumina.

XV. *Prussiate of Carbonate of Lime.*

Some salts, insoluble, or scarcely soluble in water, form likewise blue combinations with prussic acid without undergoing decomposition.

I boiled water containing carbonate of lime diffused through it, and mixed with it a liquid containing prussiate of potash with an excess of muriatic acid. The prussic acid immediately united with the carbonate, and the prussiate formed became bluish-black after some days exposure to the air.

It was insoluble, in cold muriatic acid. Concentrated sul-

phuric acid disengaged a great deal of carbonic acid, and formed a sulphate without destroying the blue colour.

XVI. *Prussiate of Sulphate of Lime.*

Sulphate of lime appears to me one of the substances which has the greatest affinity for prussic acid of those which I tried. I precipitated muriate of lime by sulphuric acid diluted with seven or eight times its weight of water. I heated it to the boiling temperature, and added prussiate of potash. There was immediately formed a prussiate of a fine green, which passed very speedily to blue.

Calcined sulphate, or fine plaster of Paris, may be employed to form this prussiate. It is diffused through a great quantity of water, and then a solution of prussiate of potash having an excess of muriatic acid previously added to it, is poured in. Boiling causes it to assume a green colour.

When the prussiate of sulphate of lime has a strong blue colour, and contains a sufficient quantity of prussic acid, it is insoluble in water, and in the mineral acids: 15 gr. of prussiate of potash were sufficient to give to 100 gr. of calcined plaster a very distinct blue colour.

The sulphates of strontian and barytes newly precipitated and treated like that of lime, likewise furnished deep blue prussiates.

XVII. *Prussiate made with common White Clay.*

The dry earths and the metallic oxides in powder, when they are sufficiently divided, combine very well with prussic acid, when assisted by heat.

I mixed with water, fine white clay employed at St. Petersburgh for the manufacture of porcelain, and which does not contain an atom of iron. I decanted off the finest parts, which I boiled with prussiate of potash, without producing any change in the colour. The addition of muriatic acid made the mixture become green. After a quarter of an hour's boiling, I poured the prussiate formed into a plate. It had a fine green colour, and became blue after some days exposure to the air.

This prussiate may become useful in the arts. It has the

advantage of being always of a distinct blue colour, whatever be the proportion of acid employed to form it. This is not the case with iron, which gives yellow and green subprussiates.

XVIII. *Prussiate formed with Greenish Gray Clay.*

This clay, which is found abundantly in the neighbourhood of St. Petersburgh, and which I conceive to be coloured with a little chlorite, when treated like the white clay, gave also a beautiful blue prussiate. As it contains iron, its prussiate is nearly the same as common prussian blue. It requires longer boiling than the preceding, because it is difficult to destroy the green colour of the earth; but when it is formed, it is perfectly similar to the finest prussian blue of commerce.

Observations.

When we review the facts contained in this memoir, we may observe, that when the combinations of prussic acid with carbonate of lime, sulphates of lime, barytes, and strontian, pass from green to blue by the slow absorption of oxygen from the atmosphere, it is not, in all probability, the bases of these prussiates which are oxidized; for the carbonate and the sulphate of the earths are not capable of uniting with an additional dose of oxygen. It is probable then that it is the prussic acid itself which unites with the oxygen in this case.

We find a proof of the oxidation of this acid in its combination with indigo. The boiling sulphate of indigo precipitated by prussiate of potash is all at once disoxygenized, and assumes a green colour, as when it is treated by sulphate of iron in the dyer's vat.

It is likewise very probable, that in all the blue metallic prussiates the prussic acid is oxidated, while the bases are at a minimum of oxidation, and this is evident for the blue prussiate of copper. We see in fact that the protoxide and peroxide of copper in all their solutions form red prussiates; while in the blue prussiate (experiment 10), the copper dissolved in contact with the prussic acid is seized upon in a nascent state, at a degree of oxidation which is doubtless less than

that of all the known oxides of copper, which give red prussiates.

If the peroxide of iron gives a blue prussiate at the instant of its formation, the reason is that it contains enough of oxygen to saturate the acid while it passes into the state of protoxide, while the peroxide of mercury which contains only 0·10 or 0·15 of oxygen forms a green prussiate. Now as it is known that mercury is incapable of combining with a greater quantity of oxygen, it follows that when the green prussiate passes into blue, it is not the base which absorbs oxygen, but the prussic acid itself.

Sulphur, phosphorus, and carbon, form green prussiates, because they cannot furnish the requisite quantity of oxygen to the prussic acid. It is obvious that these radicals cannot pass to a maximum of oxidation, when the prussiates change from green to blue, because, when saturated with oxygen, they become acids. This is the case also with those substances which contain much oxygen in such a degree of union that the prussic acid is unable to abstract it. These substances combine green, as the earthy sulphates, and the oxides of aluminum and silicon.

By means of this theory, which explains all the facts, the phenomena of the two prussiates of mercury, one soluble and colourless, the other blue and insoluble, are easily understood. When in order to make the soluble prussiate of mercury, we boil prussian blue with red precipitate, a change of bases takes place by double affinity. The mercury has a very great affinity for prussic acid; and the iron of prussian blue, which is at a minimum of oxidation, has likewise a great affinity for oxygen. Hence it happens that the iron deprives the acid of oxygen, and passes into the peroxide; while the mercury seizes the pure prussic acid without oxygen and without iron. In this last state the prussic acid drawn from mercury has no *cyanic* power, and remains mixed with sulphate of iron without forming a prussiate.

I shall terminate this memoir by an experiment, the result of which gives great probability in this conjecture.

If the prussic acid, when it combines with the peroxides,

has really the property of absorbing a portion of their oxygen, and of bringing them to the state of protoxide, it ought to act in the same way on the oxide of the red prussiate of copper, and make it pass to blue, on the supposition that in the blue prussiate the oxide of copper is at a minimum of oxidation.

To determine this point, I mixed beautiful red prussiate of copper, newly precipitated and washed on the filter, with water. I added a little muriatic acid, and boiled the liquid. The colour appeared to become more red. I then threw in some crystals of prussiate of potash, and had the pleasure of seeing the mixture speedily pass to the finest blue.

This experiment seems to me to furnish a double proof, both that prussic acid does not produce the blue, except when it is oxidized, and that the bases of the metallic prussiates are at the minimum of oxidation. We may, therefore, distinguish three different well marked states in prussic acid. 1. The pure acid without oxygen, and without iron, such as it exists in the soluble prussiate of mercury. 2. The ferruginous acid without oxygen, such as it exists in the prussiate of potash, and in the green prussiates. 3. The ferruginous and oxygenized acid, such as it exists in all the blue prussiates.

Spontaneous Ptyalism, accompanied by a diminished Secretion of Urine. By Dr. Prout.

[From the Annals of Philosophy, for December, 1819.]

THE subject of this singular case was a woman upwards of 60 years of age. The ptyalism was constant and excessive, amounting to several pints in the course of the day, while the urine was reduced to a few ounces. Its source appeared to be the whole of the apparatus destined to secrete saliva. The woman had lost her appetite, and her strength appeared reduced, but in other respects nothing remarkable was observed.

The taste of the fluid was described as *urinous*. It was opalescent, very slightly ropy, and foamed when agitated. Its

specific gravity was 1005·5. It restored the blue colour to reddened litmus paper, and faintly reddened turmeric paper. Hence it contained a free alkali, to which was doubtless owing the *urinous* taste above-mentioned.

When exposed to heat, it coagulated. The soluble salts of lead, mercury, and silver, when added to it, caused precipitates. The addition of the mineral acids also caused precipitates. Even dilute acetic acid produced a copious precipitate, but when prussiate of potash was afterwards added, no precipitate took place. Hence the animal matter, though evidently retained in solution by the free alkali present, was not albumen; but appeared to be the peculiar matter secreted by the salivary glands, perhaps a little altered in its nature.

One thousand grs. evaporated to dryness at a temperature between 212° and 300°, left 8·65 grs. which were found to consist of

Animal matter above-mentioned	3·33
Animal matters soluble in alcohol and similar apparently to what are usually found in the blood	1·06
Sulphuric acid	0·90
Muriatic acid	0·75
Phosphoric acid	0·06
Alkaline matter, consisting partly of soda and partly of potash	2·55
	8·65

With respect to the relative proportions of the potash to the soda, or how they were distributed among the acids, I did not attempt to ascertain. But it is evident that the acids were not sufficient to neutralize the alkalies present, which accounts for its sensible properties, as detailed above. When the animal matters were burned, they left a minute quantity of the earthy phosphates.

The urine of this woman was of an amber colour, slightly opaque. Its specific gravity was 1013·1. It contained crystals of uric acid, and reddened litmus paper more strongly than usual. It contained much less urea than natural, but a

large proportion of a brown animal substance, which appeared to render it very prone to decomposition, especially when exposed to heat.

This case occurred to my friend Dr. Elliotson, at St. Thomas's hospital. With the view of increasing the flow of urine, diuretics were given. These produced the desired effect. The urine was rendered more natural and copious; while the salivary discharge was proportionably diminished.

It is not unlikely that cases of this nature have been mistaken for *discharges of urine from the mouth.* In the present case, it appears that the woman herself considered that the fluid came from the stomach, and was of an urinous nature. She had laboured under similar attacks before, but they were less severe, and after some time had ceased spontaneously, and her appetite and strength had returned as usual.

The Application of the Cupping-glass recommended to expedite the Discharge of Matter from Abscesses of the scrofulous kind. By Francis Bush, Esq. Member of the Royal College of Surgeons.

[From the London Medical and Physical Journal.]

Abscesses of the subacute or scrofulous kind are generally indolent and tedious in their progress, but little under the control of constitutional means or the usual topical applications; and it often happens that the patient suffers a very protracted illness before the discharge of the matter takes place; and, where it is deep-seated, it frequently runs along the course of the contiguous muscles, producing extensive lesion and constitutional mischief. In the management of this disease I have been induced to adopt a plan to solicit the early discharge of the matter, which has been attended with a success beyond my most sanguine expectations. As I have nothing new to offer on inflammation, I shall not remark on the early treatment of abscess; but shall take up the subject where it is quite clear that matter is formed, and requires to be discharged.

One very striking advantage to be derived from the application of the measure I suggest, is, that you effect the discharge at the most depending part of the abscess. I shall subjoin two cases to illustrate my plan, which I am confident is capable of doing much service, if judiciously applied.

Case I.—Mr. D. aged 24 years, was, after violent exercise, in the heat of July 1818, attacked with shivering, succeeded by deep-seated pain in the lumbar region. Leeches, general bleeding, and the usual methods of subduing local inflammation, were tried, without success. Matter formed; and it was invited to the surface by poultices of various kinds for some weeks, to but little purpose. In this state of the case, I thought, by taking off the atmospheric pressure from the most depending part of the tumour, I might produce some excitement in the parts, and effect an early discharge: for that purpose I applied a very small cupping-glass, and allowed it to remain on for an hour; it produced a little pain only. It was repeated in the evening; and for four successive days it was continued in a similar way. The removal of the glass was succeeded by a warm poultice. By these means, in five days, I effected a discharge from the most convenient part of the abscess, which might not have been produced under the ordinary means of treatment, in as many weeks.

Case II.—A young friend of mine was attacked with inflammation in the groin, which went on to suppuration: it was not attended with pain, and after several weeks, there was no prospect of an opening being effected by the powers of nature. He was averse to its being opened by the lancet; and, indeed, the indurated state of the parts rendered it improper in this stage of the case; a small cupping-glass was therefore applied daily for three or four days, and the parts covered with a poultice after its removal. The discharge of the matter was thus effected; and the parts healed in a very short time.

I considered both these cases as scrofulous. In phlegmonous abscesses the rapid progress of the disease renders this plan unnecessary, and the high irritability of the parts would make its application improper.

Frome, October 1st, 1819.

SELECTED REVIEWS.

Elements of Medical Logic, illustrated by practical Proofs and Examples; including a statement of the Evidence respecting the Contagious nature of the Yellow-Fever. By SIR GILBERT BLANE, Bart. Fellow of the Royal Societies of London, Edinburgh, and Gottingen; Member of the Imperial Academy of Sciences of St. Petersburgh; and Physician to the Prince Regent. 8vo. pp. 219. London. 1819.

[From the London Medical and Physical Journal, for October, 1819.]

THAT a system of logical principles of a science so interesting to human happiness as that of medicine should not have hitherto been formed, by which the study of it might be reduced to methodic order, rather than, as is the case, pursued in a more or less irregular and indeterminate way according to the disposition of each individual, is a circumstance that may appear extraordinary to persons who have not contemplated this subject in a sufficiently accurate and comprehensive manner. In order to place it in its proper point of view, we should first determine what it is that constitutes the logic of a science, and how the logical principles of other sciences have been formed; for, it should be understood, physics, as well as metaphysics, may each have their system of logic.

Poetry and music present themselves as well adapted for the illustration of this enquiry. Above twenty ages have elapsed since their logical principles were instituted, and the same principles have maintained their original authority down to the present period, amidst all the revolutions of human sentiments, under the different social and political customs and habits that have intervened.

The man of pre-eminent genius, who has collected from any objects the most accurate and comprehensive series of ideas,

the mutual relations of which he has also determined, has acquired a system of knowledge of such objects that must be considered relatively perfect. To trace those ideas and the order in which he has acquired and developed them, must, then, display all that is known respecting the subjects of them, and, at the same time show the method by which such knowledge may be most accurately and readily obtained: it is this, we think, which constitutes the logic of a science.

From this view of logic, it must be evident that knowledge must be obtained, before the principles best adapted to direct men in general in its acquisition can be instituted. Such has been the fact with regard to poetry and music.

HOMER had acquired the most perfect series of ideas of the good and beautiful, the καλοκαγαθου, of poetical sentiments, before a system of *Poetics* was formed: ARISTOTLE only described the course taken by Homer. EURIPIDES had impressed the mind of man with the most vivid feelings of awe and astonishment, before LONGINUS could have written his treatise on the *Sublime*.

It was the same with respect to *Music*. The ear of PYTHAGORAS had enabled his mind to discern the relations existing between certain sounds, before he applied the relations of numbers to them to explain the nature of harmony.

If this notion be correct, and further illustrations of it might be readily adduced, but little need be said to shew why logical principles have not hitherto been instituted respecting medical science.

Our ideas of the physical, or rather mechanical, construction of the human body, may perhaps be sufficiently accurate and comprehensive for such a purpose; but the physiology of it is yet obviously very far from being in so perfect a state; and its pathology is still less advanced, although this was cultivated in a correct manner at a very remote era. But subsequent enquiries deviated from the course taken by Hippocrates; vain researches after proximate causes were made, instead of endeavours to trace the history of phenomena; and though at length BACON fully displayed the folly of this conduct, it is only lately that his precepts have been followed by the generality of physicians. Of therapeutics our knowledge is far from being

accurate, comprehensive, and well-determined; and it is, on many important subjects, vague in the extreme. We have discerned a connexion between certain remote results and certain agents, but we have in but a very few instances traced the progressive phenomena on which they depend. We do not mean to say, that it is to be regretted that it has not been ascertained in what manner medicinal substances primitively affect the part of the animal body to which they are applied; but that we have not discerned the order of the secondary and subsequently progressive trains of results, without which our knowledge of this subject is too imperfect to serve as a basis for any logical principles. Thus, as an example, we know not in many instances whether medicinal substances applied to the stomach affect remote parts of the system by being carried to them through the medium of the fluids, or solely by organic, or functional, connexion. Of one probably highly important subject, what may be termed *atmospheric* influence on the body, but very little is known.

The mere enumeration of these subjects, as insulated objects of study, shews, indeed, in a very forcible maner, how distant we are from that period, when a solid basis shall be laid for the construction of a system of medical logic. The separating the study of the anatomical formation of the body from that of its functions, and the functions in the state of health from those in that of disease; this, and all our histories of a multitude of individual phenomena as such, may have been useful, and indeed necessary, in a subject comprising such a multitude of various ideas: it is analogous to what has been done, apparently with benefit, in other and more confined sciences; but even though the distinct histories of each of those subjects were rendered perfect, a system of logic could not be formed, until some mighty genius shall arise, who has the awful power of mind to comprehend the whole at one view; to trace, at the same time, the series and order of the phenomena, and to determine their relations under every variety of known circumstances. But, when may such a genius be expected to appear? The history of man shows that nations have risen, flourished, and fallen, without an ARISTOTLE having been produced.

The hope, then, that a system of medical logic will be ever

instituted, must be but very faint; or, at least, the probability of its realization must be assigned to far distant ages. This only exists for the present generation,—to proceed steadily in the true road for the acquisition of knowledge, which we have at length happily discerned. We shall thus have the gratification of employing our talents in a manner the most immediately beneficial to human nature; and we shall at the same time be collecting materials adapted for the construction of an edifice, that would constitute the most glorious and useful work ever executed by man.

Such are our opinions respecting medical logic in the most comprehensive view; but, while the study of the science of medicine is parted into the divisions we have enumerated, it may perhaps be allowable to consider the development of the principles of each of those divisions in an isolated state, as well as it can be effected, as the logic of those divisions: and this appears to be the opinion of Sir GILBERT BLANE; for, if the work we are about to take into particular consideration may with propriety be termed "*Elements of Medical Logic*," it can only be so in the partial manner we have just described.

In an analytical report of a work of this kind, the most clear and useful method would be, first, to give a general scope of the author's design, and then to adduce the particular illustration of his principles; but, for reasons which will be hereafter apparent, we must on this occasion commence with particulars, following the author step by step in his own course.

Sir Gilbert Blane commences the introduction to this work with a definition of medicine: he says,

"As medicine has for its object the preservation and restoration of health, it comes under the definition of an ART,—a term, the import of which consists in the adaptation of means to ends. These means must be derived from the previous knowledge of the changes producible by them, whether as corporeal agents constituting physical causes, or as affections of the mind constituting moral causes."

This we consider to be only a partial view of medicine, using that term in the comprehensive sense in which it is generally received, and in which the author has himself employed it, making it to comprise physiology and pathology, as well as

therapeutics. That the two former are objects of science, must, we think, be admitted. To show this, let us consider the case of a man who has a portion of the integuments of the skull separated from that bone by a sharp-cutting instrument, without any forcible concussion of the subjacent parts: some days afterwards symptoms of disorder of the functions of the brain appear; the man soon dies; dissection after death shews signs of a diseased, and perhaps gangrenous, state of the membrane lining the scull internally, corresponding in situation with that portion of it from which the external integuments had been removed. The description of these things constitute only natural history, and the knowledge of their occurrence cannot properly be termed science, in the received meaning of that term; but, the explanation of the relation of one of these things to the other,—that is, the explanation of the causes of the results, by shewing that a due circulation of fluids in a part is necessary for its vitality; that the internal membrane of the skull is chiefly dependent on the external membrane for the supply of those fluids, which is effected by the immediate transmission of vessels through that bone from one surface to the other; and, consequently, that the separation of the external integuments from the skull, by depriving the internal membrane of the fluids necessary for its vitality, must be followed by the death of the latter. This constitutes science, just as certainly as the explaining why, in a right-angle triangle, the square of its hypothenuse is equal to the square of the two other sides. And, though the object of this knowledge is the application of medicinal agents to the cure of disease, yet the faculty of using those agents with precision cannot be acquired without this kind of knowledge. For example, a person has a disease of the hip-joint, but no uneasiness is felt in the region of that part; the pain is confined to the knee: the practitioner, following the indications of art solely, would here apply his remedy to the *apparent* seat of the disease in vain. Science here becomes necessary, as well as art. We think they cannot be separated in a general and comprehensive definition of medicine.

Sir Gilbert Blane next adduces a statement of what he considers to constitute reason: he says,

"The most precise criterion that can be fixed upon for dis-

tinguishing rational beings from brutes, is the faculty of adapting means to ends; and there is perhaps no operation to which the term *reason* is so appropriately applicable."

This proposition respecting reason is, we believe, generally acknowledged by philosophers; especially since the principles of it were so well displayed by MALLEBRANCHE, who shews, in a very plausible manner, that *the difference between simple perception, judgment, and reason, consists in this,—that, by simple perception, the understanding perceives a thing without relation to any other thing; that, by judgment, it perceives the relations existing between one or more things; and that, in reasoning, it perceives the relations perceived by the judgment:* it is the knowledge of these relations that constitutes the faculty of adapting means to ends. But the denial of this faculty to brutes, is a point in which many great modern, as well as ancient, philosophers, do not agree with the author. We shall pass over this question, of course, as not relating to medical logic.

The faculty of applying means to ends in the art of medicine, is a sort of knowledge, that "has, to some persons of a sceptical turn of mind," the author observes, "appeared so unattainable, as not to be worth prosecuting, and they raise the previous question, *an datur ars medicinæ?*" The author argues in favour of its validity, from the actions of the brute creation, and of savages, when suffering disease: he remarks, that savages but rarely die of old age, though their maladies are fewer, and less essentially severe, than those of cultivated nations; he points out also, as an evidence of the reality of the medical art, the undoubted beneficial control it exerts over many diseases. What, too, would be the use of various plants, except as medicines? he inquires; and, finally, he says, to deny it, is to arraign the benevolence of nature, in subjecting man to the calamities of disease, without providing means for their relief. He concludes the introduction with observing, that it is his intention, "with unfeigned diffidence and humility, to endeavour to point out, in what medical truth consists; what are the difficulties that have obstructed its progress; and what the means of obviating them."

The preliminary observations to the body of the work commence with a remark, that it is the knowledge of the reciprocal

relations of cause and effect, and thence the faculty of adapting means to ends, and the just application of such as we can command, which constitute skill and judgment in the cure of disease, as well as in the other arts of civilized life. "These agencies," Sir Gilbert Blane continues to state, "are ascertained by observation and experiment: by the former we may be said to listen to nature, by the latter to interrogate her." He conceives that there exists a certain relation between the structure of the body and its qualities with the surrounding natural objects and phenomena. "Every reflecting mind," the author says, "must be struck with the admirable correspondence of the structure of the living body as a whole, and of the senses and functions in detail, in relation to external nature; such as the adaptation of the whole frame to the laws of gravitation, and of the eye and ear to the properties of light and air."

The author carries this sentiment further: he says there is a similar relation existing between the constitution of the mind and the laws of nature; the most essential attributes of these being the *constancy* of their operation.

"Now," he continues, "the human mind has as evident a relation to this constancy of the laws of nature, as the senses have to their respective elements; for, from the earliest period of life, there is, previous to all experience, a most unbounded confidence in the present and future constancy of events, manifested in all the actions and attainments of practical life. The belief that the sun will continue to rise every morning; that all bodies will continue to gravitate to the earth; that the human beings around us exist, feel, and think, as we do, may be quoted as examples of this untaught knowledge."

If this opinion be correct, the fable of the Sybarites, who blinded themselves in the darkness of the first night, believing their eyes would in future be devoid of use, must be considered an idle invention, instead of being, as the doctrine of some great philosophers would lead us to interpret it, a symbolic illustration of a metaphysical truth.

Sir Gilbert Blane, proceeding in a train of reasoning on the same principles, says,

"But this is not all, nor the most important coincidence of the frame of the mind with the established course of nature. In

all the effects produced by the action of external bodies on each other, and on our own bodies, there is a rapid and instinctive connexion established between cause and effect, in virtue of that part of the structure of the mind by which it is made susceptible of habit and association, particularly in early life. So that, not only every organ and function of the body, but every faculty of the mind, is co-relative with, or represents and reflects, as it were, the elements and laws of universal nature."*

This doctrine was first advanced by the author in a discourse read to the Speculative Society of Edinburgh, in the year 1771; and, as must be obvious, it is in opposition to that which states custom to be the only source of our ideas of cause and effect. It was against Mr. Hume, the most forcible advocate of that doctrine, thar Sir Gilbert Blane especially made this attack. We shall not presume to adduce our opinion on a question that still divides many great metaphysicians; but we must remark, that we think Sir Gilbert Blane, in the following paragraph, rather favours, than controverts, the notions he opposes. He says,

"These confident expectations of the future, could never have been discovered by reasonings *à priori;* inasmuch as we know nothing of the tie which connects cause and effect: *nor can we form any anticipations of future events, but from the past experience of what may be called simple sequence.*"

These speculations must not be considered totally foreign to the proper subject of this work; because, by reasoning directly or analogically from what we have been taught by custom; or, according to the doctrine of Sir Gilbert Blane, by finding that, in imitating the sequences of nature, we can adapt means to ends, so as to bring about certain results; we acquire our first idea of *power*,—the want of accuracy in which, in the forcible expressions of the author, "has given rise to those mischievous errors and inveterate prejudices, those numberless fallacies,

* "See this sentiment more fully illustrated, in a lecture on Muscular Motion, read before the Royal Society, by Gilbert Blane, M. D. page 40. London, 1789. It is also most ingeniously and appositely alluded to, in Madame de Stael's account of the German poetry, in her work entitled *De l'Allemagne*, page 334, vol. i. Paris, 1815."

those nugatory and superstitious practices, with which the history of the world abounds, and which have proved sources of vice and misery, embittering and deforming human life and conduct."

We shall not pursue the subject farther than the author has here done; we think, with him, that some attention to it forms a proper introduction to medical logic: but it is from treatises expressly metaphysical that the knowledge of it must be acquired.

To determine correctly the relations of causes and effects, and from first and real principles to form rational inductions, is, as the author observes, the true object of philosophy. The living body being endowed with such a multitude of properties, and, consequently, its functions being so numerous and so variable under different circumstances, cannot, without extreme difficulty, be submitted to this rational research.

"But," Sir Gilbert continues to observe, "it is incumbent on those who allege that there are obstacles to physiological investigations, seemingly so insurmountable, to specify what they are.

"The author, therefore, submits to the profession the following enumeration of the properties peculiar to animated nature; meaning under it to describe all the ultimate facts, or primary elements, which form the ground-work of physiological and pathological science.

"These energies may be arranged as follows:

1. The Generative.
2. The Conservative.
3. The Temperative.
4. The Assimilative.
5. The Formative.
6. The Restorative.
7. The Motive.
8. The Sensitive.
9. The Sympathetic.

"This arrangement differs from any with which the author is acquainted, inasmuch as it is not founded on an enumeration of functions and organs, but on elements pervading and belonging to the whole animal system. It is meant to comprehend all the properties in which the essence of life consists, and

which characterise and distinguish it from inanimate matter on the one hand, and from a moral and intellectual nature on the other."

Had the author not expressly stated, that the above arrangement of the "primary elements of physiology" was not founded on an enumeration of functions, we could not have considered that he had intended to adduce any thing at all novel. Every system of physiology treats of the generation of the body, of the causes of its temperature, of the assimilation of the food, &c.; but these things are regarded as the results of functions.

We have exerted much painful thought in endeavouring to understand the author's precise meaning, and we are not certain that we have discerned it; for his illustrations of his principles rather embarrass than assist us. In the above paragraph, he speaks of certain energies existing in the body, of which we may suppose the functions usually designated by analogous substantive terms are the results: to assist the conception of the reader, we will term them so many *archæi;*—but on defining them, Sir Gilbert Blane on some occasions gives a substantive definition of the results of functions: thus, he says,

"The ASSIMILATIVE.—This consists in the chemical changes brought about in the decompositions and combinations effected by the power and processes peculiar to life."

"The TEMPERATIVE.—By this is meant that steady degree of heat with which all animals are endowed."

And, in another place, after noticing the hypotheses that have been advanced respecting it, he says,

"On weighing the whole evidence, it seems clear, that the heat of the living body is chiefly generated by the vital energies."

Thus, then, the temperat*ive* principle is *heat;* and heat is the result of the play of the vital *energies*. This word, in this place, can only be another term for *functions*.

"The MOTIVE.—By this is meant muscular action, in its most extensive sense."

"The SENSITIVE.—Sensation, being a simple idea, does not admit of definition, &c."

Others he defines, certainly, as active principles or primary

agents: let us take a view of his dissertations upon these. We transcribe the whole of what he advances respecting the first:

"The GENERATIVE.—It will not be disputed, that this primary energy of nature belongs purely and peculiarly to animal and vegetable life. Being emphatically named the mystery of nature, and being now admitted, by all correct physiologists, to be inexplicable, it only requires in this place to be barely enunciated. It may not, however, be without use here to hold out as a beacon to those who may still be disposed to waste their time and labour in attempting to overleap the stated boundaries of nature, the fruitless and absurd results they are likely to attain; for, what can be so extravagant and irrational, as that hypothesis which professes to explain generation, by supposing an infinite involution of embryos: *Obscura obscurioribus.* The doctrine of that most respectable physiologist, Dr. Blumenbach, who refers generation and growth to what he calls the *formative nisus*, is perfectly consistent with reason; inasmuch as it is to be considered rather as an exposition of facts than as a theory."*

We shall follow the author's judicious advice, and not waste time in enquiries whether generation should be considered as the result of the play of certain functions of organized bodies, or as the work of an intelligent energy, an *archæus*, within organized bodies, moulding animal matter at its will; particularly as the subject of discussion is *medical logic*, on which nothing doubtful should be advanced,—nothing that is not an exposition of observed facts. Though, we must say, it is somewhat curious that we should be cautioned against enquiries on this subject, since they are likely to lead to absurd results, and immediately afterwards the doctrine of a physiologist designated as perfectly consistent with reason: whether as an exposition of facts or as a theory, does not signify; because, if one man has been able to discern facts respecting it, another may hope to do the same to a greater extent: and what is any knowledge but ideas of facts, or any theory but an exposition of them?

We proceed to the consideration of the author's illustrations of the other energies.

* "See D I. F. Blumenbach *de Nisu Formativo*, Göttingen, 1787; and *Abhandlung über die Nutritionskraft*, St. Petersburg, 1780."

"The CONSERVATIVE.—By this is meant that power by which the living body is prevented from running into putrefaction. According to the experiments of Dr. Alexander,* the range of temperature most favourable to the putrefaction of dead matter, being between 86° and 100° Fahrenheit, includes the usual standard of animal heat: there must therefore be some powerful energy in life itself, which counteracts this tendency to spontaneous decomposition."

Reasoning on this must be hypothetical;—it is certainly hypothetical to suppose the existence of an abstract intelligent agent in organized bodies, for the sole purpose of preserving them from putrefaction: but it is a very probable hypothesis which attributes the preservation of living animal bodies from putrefaction, to the affinities between its particles constantly in play whilst its functions are performed. When these cease, those bodies then become subject to the more powerful affinities of the surrounding medium, which are chemical affinities, whilst the particles of the dead body are kept together only by the common gravitation, and the weak cohesion of soft substances.

The author, referring to this opinion, which was that, he says, of Dr. Alexander, and some other physiologists of that day, as it is that of many great physiologists of the present, too, should have been added, says, "It is quite inadequate to account for this striking phenomenon; and that there is an antiseptic power in life, independent of motion and the change of matter, is proved by the same principle of self-preservation being found in the quiescent state: for instance, in impregnated eggs and torpid animals."

These things afford no support whatever to the author's hypothesis; for it is certain that torpid animals are *not in a quiescent state;* and it is very probable, if abstract reasoning alone can make any thing probable, that the egg is not so. The statement we have made respecting torpid animals, has been satisfactorily proved by the experiments of Professor MANGILI, of Padua: he has ascertained that respiration, and of course the circulation of the blood, are slowly carried on. This might have been well supposed; for, if there were no actions going on

† "See *Experimental Enquiry on the Causes of Putrid Diseases.* London, 1771."

in them, how is the fat with which they abound before they become torpid absorbed, leaving them comparatively thin and emaciated when they come out of that state?

And, how can the egg be supposed to be in a quiescent state? It contains an organized mass: how can this have been formed without action; How is the chick subsequently developed, without action? It is more rational to suppose that a degree of action, insensible to our eyes, is constantly going on in the living egg, analogous to that by which its organization was developed,* than that it ever totally ceases for a time, and is then resumed. Besides, why is a living egg warmer in a certain temperature of the atmosphere than a dead one? and why is it not frozen in the same degree of heat? How can the *materia vitæ*, the existence of which the author favours, cause this difference in the living egg, in any other way than by producing *action?* We are at a loss to conceive how an organized mass, in an absolutely quiescent state, can be said to be influenced by any agent. If it is influenced by it, it must be acted on by it, and re-action must ensue. If it is not influenced by it, we must look for other reasons for the phenomena we have alluded to; and no reason can be so satisfactory, considering the subject in an abstract manner, as that there is a series of actions going on; and analogical reasoning from observed physiological facts shews the probability of this opinion; always bearing in mind that an egg is an organized animal body: and, with respect to the want of evidence to the senses of the existence of action, living plants stand in a similar relation to them.

The author adduces some other general arguments, which we consider as still less valid than those we have noticed, in favour of the existence of a *materia vitæ*, the original invention of which doctrine he attributes to JOHN HUNTER; and he expresses his surprise that "we meet with works on physiology, some of them even professing to be complete systems, in which this fundamental law of life is not alluded to."

Here we do not comprehend what the author means to signify: terming the existence of a principle, supposing it were not supposititions, a *law* of life, is using language in a manner so

* MALPIGHI says, the body of the chick is formed in an egg before the incubative heat is applied.

different from its common acceptation, that we cannot at all understand it.

We must make some remarks respecting the neglect of this doctrine of the existence of a *materia vitæ*. It is not admitted, either because it is considered that the cause of *life* cannot be regarded in an abstract manner, as distinct from organization; or because the admission of such a principle is, at least, contrary to the mode of philosophising inculcated by BACON.

We here pass over the *assimilative* and *temperative* energies, because, as we have already shewn, the author defines them, substantively, *heat* and *assimilation*, and states these to be results of the *functions of the* SYSTEM.

"The FORMATIVE.—This may be called also the organizing or plastic. It has not usually been stated as a principle distinct from the last, the *assimilative*. The slightest reflection, however, must evince that it is quite a separate act of nature, and as different from the assimilative as the construction of an edifice is from the preparation and collection of its materials."

It is by this, the author says, that the procession of growth and repair are effected; and, as a subject for wonder, "with such harmony on both sides the body, as to produce that correspondence and symmetry which we behold!"

"This is a subject," the author continues, "the nature of which eludes the keenest research, and overwhelms the mind of man with astonishment and despair; from which it can find no refuge, but in resting on it as an ultimate fact, and referring the whole to supreme intelligence."

In the latter sentiment we most cordially concur, but not in the former of those contained in the foregoing paragraph. We have, happily for our mental comfort, ceased to feel despair at not being able to discover the proximate cause of any natural phenomenon; but we know what it is to experience this suffering, and we yet remember it with pain. In early life, before we had studied the works of BACON, or become acquainted with the disputes of the Academic sect, as may well be supposed, we endeavoured to discover the cause of apparently one of the most simple of natural phenomena,—the passing of a ball from the hand of a person in a direction different from that which it would take when solely influenced by the laws of gravi-

tation. Our books told us that *momentum* was given to it. But what is *momentum?* It is something material, or it is immaterial; and how can it act on the ball after this has left the hand? We were indeed "overwhelmed with astonishment and despair." The hints these remarks convey may prove useful to some of our younger readers.

Returning to the author's dissertation on the formative energy, we find him remark, in continuation from the paragraph last transcribed, that,

"Should any one attempt to scan it further, by ascending higher in the scale of natural causes, (higher than supreme intelligence?) he will either find himself baffled, or will be in hazard of falling into some extravagance; such as that of Van Helmont, who held that there was in living beings an intelligent principle, which he called Archæus; presiding over, and directing, the secret movements of the animal machine; or of Stahl, who referred it to the rational soul."

We revere VAN HELMONT; and regret to see his opinions marked with the stigma of blame, without their merits being at the same time designated. His accurate and penetrative views led him to discern that there must be an active and powerful influence, seated about the region of the stomach, distinct from the other chief influences regulating the functions of the system; that is, distinct from the brain and spinal marrow. The functions of the ganglionic system of nerves had not then been determined by experiments; this was not effected until nearly a century after, by JAMES JOHNSTONE: but Van Helmont had in a manner anticipated the discovery; and the making that influence consist in an intelligent immaterial principle, was, with a few chemical absurdities, as Sir Gilbert Blane indeed observes, the error of his age. Put the ganglionic system of nerves in the place of his *archæus*, and his works must be perused with benefit and delight. We proceed with the transcription of another paragraph:

"The proper function of the formative faculty, is growth and repair. The long and universally received mode of conceiving the progress of growth, was that of a constant accretion of organic matter, giving additional length and breadth to the parts nourished. But it is evident that this would render the preservation of shape utterly incompatible with the en-

largement of dimension; and it was first clearly demonstrated by Mr. John Hunter, that the only process by which the growth of solid parts, particularly bones, could be carried on, was by a constant removal and replacement of particles."

Hence we must correct a little error in the history of physiological opinions. It may be difficult to determine when the nature of this process was first demonstrated, because analogous notions were advanced by the ancients, but it is certain that it was well developed long before the time of John Hunter. The story of the Dutch advocate, who saved his client from the sentence of the law for having committed murder nine years previously, by bringing distinguished physiologists to state their opinions that the human body was totally renewed in less than seven years, and therefore, as he showed, his client could no longer be the same man, is very ancient. However, this doctrine is fully and accurately displayed by BORDEU; and we particularly notice this, because we can at the same time refer to an author who dwells with much earnestness on some pathological notions, which Sir Gilbert Blane also advances as worthy of consideration: that there seems to be particular outlets for particular species of *effete matter*. Bordeu has perhaps carried this doctrine to excess, in his endeavours to rescue the physiology of the human body from the dominion of the chemists and mechanists, in that curious specimen of fervid discussion, his *Analyse Medicinale du Sang*.

On the *restorative energy*, the author observes, "it is well remarked by Dr. Gregory,* that it carries in itself the means of repairing the injuries and disorders incident to it." The chief illustrations of this which the author adduces, are the phenomena attending on sleep; several very curious and interesting facts respecting which he adduces; and its agency, as the *vis medicatrix naturæ*.

Whether the phenomena last alluded to depend on an abstract intelligent principle, or are results of the common laws of the animal economy, is a question likely to be a subject of scholastic disputation for a long period to come. We shall certainly not attempt to discuss it, whilst the works of BOYLE and GLISSON are in existence.

* "See *Conspectus Medicinæ Theoreticæ*, vol. i. p. 5."

The *motive*, the *sensitive*, and the *sympathetic* energies, we shall here pass over; because, as we have already observed respecting the two former, the author defines them as results of the functions of the system.

Here we arrive at the termination of the first section of this work; and we repeat, we are by no means certain that we have seized the precise meaning of the author respecting the "ultimate facts, or primary elements, which form the groundwork of physiological and pathological science," not founded on an enumeration of functions. We have some conception that he may intend, by these energies, only to designate phenomena resulting from the exercise of the functions, but which are not themselves the functions: in other words, that these are an analysis of the functions. But then, his express language does not authorise such a supposition; on the contrary, it, with regard to some of them, designates those energies as species of abstract intelligent agents existing in the animal body; each having its peculiar office, and exerting its influence on animal matter in virtue of its will, if it may be so expressed. And, if by these energies it is intended, as we have supposed, to designate an analysis of the functions, then there is nothing whatever of novelty in what the author has adduced, as far as relates to *principles;* though his illustrations of them, regarded in the point of view last alluded to, are often original and ingenious.

No work ever passed our critical examination that we have been so desirous to press on the perusal of our readers, as the one before us. The reason of this must be too obvious to require explanation.

There can be no question more interesting to the young physician of liberal acquirements and a reflective disposition of mind, than that relating to the importance of physiological and other scientific knowledge, in its application to medicine as an art. The history of the revolutions of medical opinions in different ages, and of their diversity at the present period, will rather add to his embarrassment than lead him to any determinate mode of conduct.

The method of HIPPOCRATES, so generally approved by experienced physicians, he will find to have been strictly enlighten-

ed empiricism. Many things, however, tend to make him not regard this in a favourable manner: he is unwilling to believe that the greater part of his laborious scholastic studies can be of so little utility to him as that method would inculcate; and he turns with eagerness to the opinions of the dogmatists, so flattering to his own inclinations. But let him pass in review the most brilliant systems of the methodic sect, whose precepts they have followed, and contemplate the results of the application of those of ERASISTRATUS, GALEN, PARACELSUS, BOERHAAVE, HOFFMANN, CULLEN, and BROWN; and he will be in doubt whether the benefits some of those have conferred on human nature, have not been counterbalanced by the ills that have emanated from others. The doctrines of another sect, especially if it be disposed to metaphysical reflection, will then appear in the most glowing colours. Its votaries will tell him, that the human body, which possesses the power of its own preservation;—of appropriating to its use aliment and air;—of resisting the destructive influence of various external agents, and of re-producing parts that have been destroyed by others;—may be well supposed to be able, in most instances, to restore, without the aid of art, the harmony of its actions, when accidental circumstances have thrown them into disorder. To observe the progress of the actions necessary to effect this through their different revolutions, without attempting to interfere with them when they proceed in a proper manner; and to regulate them, if they casually deviate from it, by such means as experience may have shown to be successful in similar cases, is, then, considered to be the only proper conduct of the true physician. But, there is only one step from this to absolute Pyrrhonism; the gloomy and repulsive regards of which will probably drive him from the path of the *Naturists*, although they have been adorned by almost the finest genius that ever walked in the regions of medical science. The *Eclectics* will point out the course of SYDENHAM, BARBEIRAC, and BAGLIVI, to his view; but he will sometimes be obliged to turn aside from them, and will then, notwithstanding the assurances of his advisers, often find himself in the midst of a mere chaos, constituted of the dispersed ruins of other systems.

Has not medical knowledge, then, attained such a state as to

admit of some conclusions on this subject, that may serve as general principles for the conduct of the young physician? This interesting question is discussed in the second section of the work before us.

In order to preserve a connected view of the subjects of this treatise, we should advert to the physiological dissertations that have already engaged our attention; or, from the want of any application of them, it might appear that our analysis had not preserved an unbroken train. The following paragraph will exculpate us in this respect, though it will probably lead the reader to criminate us in others; since we have not been able to discern the peculiar view to which the author therein alludes:

"The author has thus endeavoured to enumerate and define the primary elements, or ultimate facts, belonging exclusively to animated nature. In an attempt which is new,—in a subject, of which he has taken a view peculiar to himself,—he does not dare to think that he has attained any thing like perfection. It is evident, however, that it is only by following out an analytical scheme of this kind, that a foundation can be laid for the genuine principles of theoretical medicine; for the elements of disease can only be expounded by a thorough knowledge of the elements of life and health. But it is not his intention now to apply it synthetically, by building upon it any system of nosology, physiology, or pathology; far less to bewilder himself or his readers, by agitating the question, whether life consists in the play of those principles, or if it is something superinduced on them. His sole object, in this analysis, is to convey an adequate conception of the great difficulties which those have to encounter, who would found practical medicine on a knowledge of the animal economy; and to bespeak a liberal indulgence for the errors of those, who, in attempting this, have had to grope and wander in more dark and intricate mazes than what has fallen to the lot of any [other] class of enquirers into the various departments of nature."

We repeat, we have not been able to discern the author's peculiar view in the preceding dissertation, either as relates to physiological principles or the pathological application of them; except the following remark, relating to the *restorative energy*,

may be considered to be a glimpse of it. We retrace our steps to adduce it.

"If one of the morbid poisons exciting fever should assail life by attacking one of its fundamental principles, the generating power of heat, this principle may re-act with such violence as to make it one of the main objects to repress it, either by internal remedies, or by the external application of cold; and the converse of this will happen, should the re-action be too feeble. This is not to be considered as an adopted theory, but merely a matter of hypothetical illustration."

The reader will, we hope, excuse our making any remarks on this notion, and not consider that, in avoiding it, we shrink from the performance of our duty. The author promises to advert to this subject under another head; but we have not been able to discover where he has done this, unless the query, whether the *determination* to particular organs may not be considered "as a function by itself," dependant on the motive energy, may be thus regarded.

We now return to the discussion on the utility of anatomical and physiological knowledge in the practice of medicine. The author first adverts to the errors that have arisen from the attempts made to explain the functions of animal bodies by the application of chemical and mechanical laws; and then takes a partial view of the circumstances that in different ages have either favoured, or retarded, the progress of practical medicine. In the rude state of society, he remarks, this seems to have been more indebted to those who discovered active and useful medicines, than to the labours of the learned. He passes the tribute of praise to DEMOCRITUS and HIPPOCRATES; and to ARISTOTLE, as a "most diligent observer of nature and collector of facts;" but, he continues, the syllogistic logic of this philosopher soon usurped the place of all literary and scientific pursuits. Yet Sir Gilbert Blane acknowledges, that, "in those dark times, [the middle ages,] it was better than no knowledge at all; and I am one of those who are of opinion, that this logic, though it affords little or no assistance in the discovery of practical truths, and the interpretation of nature, *is yet an excellent discipline of the mind, tending to give precision to language and thoughts*; more, indeed, in moral science and literature, than in the phy-

sical and exact sciences; *and that some knowledge of it can hardly be dispensed with in a liberal education.* I am thankful that it made part of the academical education which I received."

We have been particularly pleased with the sentiments in the above paragraph which we have taken the liberty to transcribe in italic characters, and wish Sir Gilbert Blane had expressed his opinion respecting the mathematics in a similar point of view: we think he must equally approve of the study of them; and they are now strangely neglected by physicians in general. MEAD said, he hoped to find this species of knowledge become thought as necessary to a physician as the acquisition of the Greek and Latin languages; but when the student reads his treatise on the Bite of the Tarantula Spider, and perceives the use that physician made of it, he must be disposed to treat his opinion on this subject with contempt: and the authority of Hippocrates and Galen will probably not be regarded with much more respect.

The merits of BACON are next alluded to, and appreciated: Sir Gilbert Blane, however, objects to his opinions respecting the utility of searching after first causes; but we never before saw them regarded in the manner in which he seems to view them.

Medicine, however, he continues to observe, did not avail itself of the light which broke upon science in general in the seventeenth century; but rather, from the long application of the physical sciences, became turned from its course, and oppressed with new errors. Even the knowledge of the circulation of the blood, "by its perverted application, tended to corrupt and mislead, by a loose adoption of the principles of mechanical philosophy, so well laid down in that age by Galileo and others."

We cannot have a more forcible illustration of this, than the manner in which the determination of the fluids to particular parts was for a long period regarded, and is indeed at the present time, by many physicians. The powerful influence of the nervous system in regulating the circulation, the peculiar action of the capillary arteries, and the distinct circles, as it were, formed by particular organs, have by them been lost sight of; and,

consequently, with this, the true knowledge of the real nature and origin of numerous diseases.

The well-known errors of the mechanists are then brought into view, especially those of BOERHAAVE; though the author does not neglect to pay a just tribute to the talents and acquirements of that celebrated medical reformer. But here Sir Gilbert Blane proceeds in too rapid a manner; since he passes over unnoticed the true founder of the present system of physiology to arrive at CULLEN, who, he says, "first clearly marked, and defined, the principles of life, as distinguished from those of dead matter."

Let us indulge in some remarks on this subject. We shall apologise for these, and some other circumstances respecting our conduct in the review of this work, before we conclude.

GLISSON may be considered as the legitimate founder of the present doctrine of vitality. He announced that matter is not wholly *inert*, as almost all the moderns who followed the doctrines of PLATO had believed. He supposed it to be essentially active; and that the properties thus given to it by the Author of nature, were the cause of the phenomena we observe, not only in the great bodies of the universe, but also in chemical changes, and in the re-actions of organized bodies on external agents. This doctrine he applied in a particular manner to the functions of the animal economy; and gave the term *irritability* to the power which organs derive from the active properties of the matter of which they are composed.* LEIBNITZ and HOBBES supported these opinions; and GORTER afterwards extended the application of them to plants.†

It remained for HALLER fully to develop and illustrate these principles, in such a manner as to leave no doubt respecting their truth in the mind of any man who has well examined them, and who will "on reason build resolve." Nothing remained to be effected but the discovery of some of the more minute relations of the phenomena to which they give rise; and, since his labours, they have formed the basis of physiology. The theory thence formed was applied to pathology with the utmost precision by BORDEU, who flourished before CULLEN; though

* See his Treatise *De Ventriculo et Intestinis;* 12mo. 1677.

† *Exercitationes Medicæ Quatuor;* Amstelodamiæ, 1737.

the latter, from his situation as a professor in one of the most celebrated schools of Europe at that period, gave it the *eclat* necessary to lead to its general adoption.

Many physicians have expressed doubts of the utility of this sort of knowledge to the art of medicine; and Sir Gilbert Blane thinks them worthy of so much attention, as to be made the subject of a formal examination. After some general reflections on this subject, he proposes the following query:

"Are we, then, to admit, that the greater part of what we have been taught at the schools of physic, and of what we have read, or may read, in books, is in no wise conducive to our practical improvement?"

Far from it, he replies,—for

"Though anatomy, physiology, and pathology, should be proved to be of little or no avail,—nay, of pernicious tendency, in the practice of physic, the acquisition of these branches of education is nevertheless indispensable, in order to be armed with antidotes against the influence of fallacious theories, and to obtain the guidance of true beacons, instead of false light. There is nothing better known to those who are conversant in medical practice, than that the most ignorant and shallow, those of the least learning,—nay, those of no learning at all,—are the most addicted to hypothetical reasoning, the most infected with presumption and conceit.

"The knowledge of nature in all its branches," he also observes, "is an indispensable requisite in the cultivation of the mind. It is highly useful, were it only as a gymnastic exercise of the understanding, by that salutary discipline of the mental faculties, implied in the acquisition of habits of attention, and the practice of the reasoning powers. Besides, all arts and sciences have a bearing on each other: and the history and philosophy of animal life, is surely as necessary an accomplishment to a physician as any other branch of science or literature."

It also, Sir Gilbert Blane says, tends to free the mind from superstition, which has exerted so much deleterious influence in the practice of medicine.

The concluding reply is somewhat more favourable to the cause of physiological knowledge, though much of its force

must be averted by the reflections contained in those which have preceded it.

"It must be obvious to every reflecting mind, that those who have made themselves acquainted with the various organs and functions engaged in the animal economy, must have a great advantage in practice over the unlearned empiric, in discriminating the morbid affections from each other, and in varying accordingly the respective means of relief. For instance, a physiologist and anatomist, from his knowledge of the intimate nature of morbid affections, the difference of their seat, and other circumstances, is able to distinguish spasmodic from inflammatory pains; a distinction which would not readily occur to an uncultivated observer, but of the most vital importance in practice; for the remedies required for the relief and cure of a spasmodic pain in the stomach and bowels, demands a treatment not only different, but opposite, to that which proceeds from inflammation. It is only anatomical and physiological science that can give a practitioner a clear and vivid conception of these and other distinctions essential to the safe and efficient treatment of diseases.

"Whatever doubts there may be with regard to the degree in which anatomy is useful in physic, there can be no doubt of it with regard to surgery, in which an accurate knowledge of the relative position and structure of organs is indispensable."

"But," the author then observes, "if the benefits derivable to medicine from physiological science are so limited, from what other and better source is improvement to arise? The answer is, from accurate observation: in other words, from enlightened empiricism." Of this Sir Gilbert Blane gives a well-drawn and impressive character, though it is rendered a little abstruse by his peculiar opinions respecting the responsiveness of our mental faculties to the constitution of external nature. We transcribe from it the following passage, which contains some notions, that, to say the least of them, are ingenious, and certainly merit the attention of those who are disposed to philosophical reflection.

"The avoiding of fire, of precipices, the collision of hard and pointed bodies, may be quoted as examples of this [the responsiveness of our mental faculties to the constitution of external

nature.] And what is called sagacity, in the adult ages of life, is a sort of approach to, or imitation of, this intuitive faculty; but, instead of being the immediate suggestion of nature, is founded on cultivation, which, by practice, learns to connect cause and effect, means and ends; an operation which, in well-turned minds, is performed with promptitude and precision, by interpreting fairly the appearances of nature, and stripping them of those adventitious fallacies which mislead ordinary minds. In order to attain this, there are required an appropriate natural capacity, the good fortune of not being beset with prejudices in early life, an habitual exercise in the observance of nature, a candid and ingenuous disposition, an ardent love of truth, an exalted sense of duty, a large store of facts in a correct and tenacious memory, the power of combining, comparing, and discriminating these, by an intuitive glance, in the moment of applying them to the practical end in view. This is what is understood by the term *tact* in English and French, and ἀντοχία in Greek; being the faculty by which practical facts are decided on, and is performed by an instantaneous, silent, and almost unconscious calculation and induction, to be met with only in minds at once happily constituted and highly cultivated."

We have now only to adduce the author's general conclusion, in order to complete our analysis of this part of the work. We shall give this in his own words.

"From all that has been said, we ought to be in some measure qualified to come to a decision on the celebrated question of the comparative merits of the empirical and dogmatical methods of cultivating physic. It seems pretty evident, that, if either method were employed exclusively, or carried to an extreme, the art of physic would suffer, both in its efficiency and its prospects of future improvement. It has clearly appeared, that, under such a complication of causes, influencing the operations of life, it would be utterly hopeless to decide any point purely and strictly *à priori;* and that it is absolutely necessary that experience be called in as an aid and a test to the inferences of theory. On the other hand, a blind empiricism would be found deficient, without that discriminative judgment, founded on an acquaintance with the laws of life, and without those

enlarged and correct views of general nature, by which the excess of credulity and scepticism is equally repressed."

Having thus considered the chief of the obstacles to the progress and improvement of medicine, and the errors and abuses of false or misapplied theory, the author proceeds to that of the rest: these he supposes to be, *the great diversity observable in the constitution of individuals; the difficulty of appreciating the efforts of nature, and of discriminating them from those of art; superstition; the ambiguity of language; and the fallacy of testimony.*

The varieties in the character of disease arising from an identical cause, and the diversity in the operation of certain remedies, exemplified particularly in that of purgatives, form the subjects for illustration of the first of the above series; and this section concludes with questioning whether it would be too much to affirm, that all the practical works in existence ought to be re-composed, in order to insert in them, for the benefit of mankind, and the credit of the profession of physic, the following qualifying words: "The practice recommended will be found to answer in a great majority of cases; but there are numerous exceptions to it, which it behoves every judicious and conscientious practitioner to bear in mind."

On the next subject the author makes some general remarks only; but they bear the character of the rest of the moral reflections comprised in his work, of which we shall hereafter speak. Of the influence of superstition, he alludes to several remarkable instances; as, the unresisting submission to the progress of the plague of the Mahomedans; the opposition to inoculation of the small-pox from religious prejudice; the belief in the powers of magic, amulets, &c. in the cure of diseases, many curious examples of which he has adduced from the works of Sir Theodore Mayerne; though, the author also remarks, superstitious practices ought not in every instance to be disregarded, since the rust of Telephus's spear, mentioned by Homer as a cure for the wound it had inflicted, was undoubtedly a useful remedy.

The ambiguity of language, is illustrated by the application of the terms *scurvy* and *yellow-fever;* and on the latter subject the author enters into an elaborate discussion, founded on observa-

tions deduced from very extensive researches; the chief object of which is to prove that what is properly yellow-fever, is a contagious disease. In force and precision, and methodic arrangement, his arguments cannot be excelled, and they must bring conviction to all who admit the data on which they are founded; but, we think, before this question can be decided in a manner that will be generally satisfactory, it must be first determined what is to be considered as yellow-fever; or else similar arguments to those used by Sir Gilbert Blane may be brought to show that that disease is not contagious. His data are derived from a division of the fevers of hot climates into three classes: the *endemic*, arising from marsh effluvia; the *pestilential* or *malignant* disease, or *typhus icterodes* of Sauvages and Cullen, from human effluvia; and the *sporadic*. The second, Sir Gilbert Blane states to be yellow-fever. Now, other physicians will assert, that it is the first which should be thus termed; and, for proof, refer to that which raged in the United States in 1794, 1797, and 1800, and especially at New-York in 1805, which was by general consent termed yellow-fever; and there can be but little or no doubt of its being caused by marsh effluvia. Rush at last abandoned the notion that it was propagated by contagion, although at first an advocate of that doctrine; and few men have been more cautious in judgment than him, and certainly not many better qualified to form a correct decision.

The observations and remarks on the fallacy of testimony, are too multifarious to be even alluded to in a concise manner: we can only say, that the reader will find amongst them many useful hints and judicious reflections, particularly valuable at a time when there exists a sort of rage for acquiring what are called new facts; instead of a disposition to meditate on those which are already known, and which have been established by the testimony of successive ages.

Before we part with the reader on this occasion, we have some apologies to make, and some remarks to adduce, that we particularly desire to impress on his mind. The first relate to the extent to which this article has been prolonged, chiefly by the minuteness with which we have examined some parts of the work to which it relates, and the passages introduced being

somewhat adventitious to the subject under immediate consideration: we should add, too, any part of our examination which he may probably think bears a tone of undue severity. We request him to reflect on the interesting nature of the subject here discussed, and on the great importance it is to the welfare of our art, that no principles should be formally and systematically proposed as valid bases for our reasonings, that are not well defined in their character, and substantiated by indisputable arguments. For the rest, our desire to give a perspicuous view of the object of the work must serve as our excuse.

With respect to the question of the propriety of considering this work as a treatise on Medical Logic, even as far as relates to physiology, we have shown that we cannot form a determined judgment, generally, because we have not been able to comprehend the author's meaning on some occasions; though, on others, we have considered his opinions to be hypothetical, consequently, not proper for the principles of a system. It was from the difficulty just alluded to, that we were led to express so earnest a desire, on a former occasion, that the reader should peruse the work itself: otherwise, we fear, he may attribute that difficulty to dullness in us, rather than to real obscurity in the author. But we have other reasons for recommending this work to his attention. It has here been examined more expressly in its medical relations: we have, consequently, passed slightly over, or wholly neglected, what we believe to be the best and most useful parts of it,—the many good moral reflections it contains; we should add, too, many physiological observations, adduced as illustrations of given principles, which we could not apply in the manner the author has done, and therefore neglected to notice them. But it is the dispersed moral reflections that we have regarded with most pleasure: these form a series of traits of the medical character, calculated to exalt its dignity, in a scientific and moral point of view; and, when possessed, will render the physician really qualified for the practice of an art *Deorum immortalium inventioni consecrata.*

A History of the High Operation for the Stone, by incision above the Pubis; with Observations on the Advantages attending it; and an Account of the various Methods of Lithotomy, from the earliest Periods to the present Time. By J. C. CARPUE, F. R. S. &c. &c.

[From the London Medical Repository, for October, 1819.]

IN our last general retrospect of medical literature we made particular mention of an interesting little volume, by Mr. Kirby, entitled "Cases in Surgery;" and among other points of novelty contained in that work, it will be recollected we announced the author's avowed intention to resort, in his own practice, to the high operation for the purpose of extracting a calculus from the bladder, as soon as a suitable opportunity and subject should be presented to him. In relation to this particular, Mr. Kirby says, "Though the attempt to revive an operation, which the experience of its disadvantages and dangers was thought to have justly excluded from operative surgery, may subject its author to the charge of being desirous of innovation; still I cannot resign the conviction forced upon my mind by circumstances to be detailed hereafter, that the high method has been too hastily relinquished, and that a safe means of extracting a calculus from the urinary bladder was somewhat giddily laid aside, to make way for one requiring more dexterity and display, and, unquestionably, involving a more considerable risk."

Mr. K. was, doubtless, not aware, when he penned the above sentence, that a laboured defence of the same opinion was in the act of preparation by a Surgeon, who has attained so much eminence in his profession, as to entitle every thing which he may propose, either in the way of doctrine or practice, to the respectful attention of his brethren. The publication before us, as its title imports, is for the especial purpose of pointing out the advantages which, in many cases might accrue from the high operation for the stone, as practised at the present time by some of the best surgeons in France.

"In the year 1817, (says Mr. Carpue,) wishing to know the state of surgery at Paris, I made a journey to that city, was

much pleased with the cleanliness of its hospitals, their medical arrangements, and highly flattered by the friendly reception I received from the majority of the medical practitioners. The intention of my journey being known, Mr. Morand, of Rue St. Honoré, an eminent Apothecary, sent me a note, saying, if I wished to see the operation of lithotomy, a celebrated Surgeon, Dr. Souberbielle, would operate early the next morning, at the Hotel des Invalides, on a gentleman, aged sixty-four. Mr. Morand gave me a letter of introduction, addressed to Mr. Rebis, one of the surgeons of that magnificent establishment, who received me with great politeness, and did me the favour to introduce me to Mr. Ivan, Surgeon in chief. I had also the pleasure to meet Baron Percy and Dr. Chaussier. The patient, M. de Walville, entered the room with much composure, and ascended the table. Being placed as is usual in the operation for the stone, Dr. Souberbielle, having introduced a staff, made an incision in the perinæum, and into the membranous part of the urethra; he then introduced a director into the groove of the staff, which he withdrew: he now passed along the director, an instrument that had somewhat the form of a catheter, which was held by an assistant. It is not possible for any one to conceive my astonishment: I could not comprehend for what purpose this was introduced. The director was removed, and the instrument was suffered to remain in the bladder. The ligatures were taken from the feet of the patient, who was placed in a very different position. The operator made an incision in the integuments and fat three or four inches in length above the pubis. I now perceived that Dr. Souberbielle was about to perform the high operation. He proceeded with great coolness, and extracted a large stone, then another, another, and another; he now drew forth a large quantity of small calcareous particles: this rendered the operation tedious, which the patient bore with great courage. Baron Percy said, 'Dr. Souberbielle, I think that you had better inject the bladder:' the doctor answered, 'there is no occasion, for I can feel every part of the bladder, and there is not a particle of calculus remaining.' The operation being finished, the patient was put to bed. We retired into the adjoining apartment. Baron Percy said it was usual for the Attendant Surgeons, when they ap-

proved of an operation, to signify the same. On this he wrote the annexed paper, stating that Dr. Souberbielle had operated with great ability; that the stone consisted of variously sized particles, which, when collected, were about the size of a turkey's egg; and that the Professors and Doctors present, (the Surgeons in Paris rank with, and have the degree of Doctor,) were of opinion that the patient was in a state which afforded the greatest hopes of his recovery."

Mr. Carpue goes on to inform his readers that the patient speedily recovered, and that several other individuals who had been operated on in the same manner, some of them under unfavourable circumstances as to age, &c., were speedily and effectually relieved from their sufferings by this high operation thus performed by Dr. Souberbielle. So much impressed was Mr. C. with what he saw, that he, like Mr. Kirby, conceived an immediate bias in favour of this manner of performing lithotomy; and he therefore proposes the restoration of an operation with which he confesses himself hitherto to have been totally unacquainted, and which "had not been performed in London for a period of nearly a hundred years."

It will have been perceived by the reader, that the principal feature of novelty in Dr. Souberbielle's operation consisted in the introduction, by the perinæum, of an instrument, prior to the incision being made above the pubis; and this first step of the high operation performed in this manner does away, Mr. C. conceives, in a great measure, the objections which lie against it. Upon further prosecuting the investigation of this subject, Mr. Carpue, however, finds that the method above described, although to him novel, is not in fact new, but is the one suggested and employed by the celebrated Frère Côme, in order to obviate the inconveniences attendant upon injecting the bladder for distention.

The principal part of Mr. Carpue's volume which is now before us, is made up of a history of lithotomy; to follow which perhaps, even in abridgment, would not be very interesting to the generality of our readers. Suffice it to say, our author contends, that Franco, who was born at Turrière, in Provence, in the sixteenth century, was not only the actual inventor of the lateral operation, but "that the situation of the patient, his

treatment before and after the operation, the instruments used, the incisions made, were the same which are now in use." Mr. C. endeavours further to prove that Franco was only restrained by an apprehension of obloquy which might follow the proposal, from openly defending and practising the incision above the pubis.

We, however, pass over the preliminary matter of Mr. Carpue's book, as not so immediately bearing upon the main object of its publication, and proceed to extract the account which the author gives of Frère Côme's method of performing the operation in question.

"Frère Côme's book, which was published in the year 1779, is entitled, "Nouvelle Méthode d'extraire la Pierre de la Vessie urinaire par dessus le Pubis, qu'on nomme vulgairement le Haut Appareil—dans l'un et l'autre sexe, *sans le secours d'aucune fluide retenu ni forcé dans la vessie.*"

"Frère Côme quotes Douglas, Cheselden, Macgill, Thornhill, Bamber, and Heister.

"In this publication he gives a chapter on the necessity and advantage of the method called the High Operation; but he remarks, that it will require an experienced lithotomist to decide in what cases the operation is necessary.

"Frère Côme says, the operation should be performed where there is an affection of the perinæum or of the urethra, or the disease of parts contiguous to the bladder, or the largeness of the stone, or the weakness of the patient, who cannot bear the irritation of the extraction by the perinæum. In females, from his experience, he finds that when the urethra is dilated or cut, there is generally an incontinence of urine, which is as much to be dreaded as the stone itself. He says, that in females the High Operation is far superior to every other.

"If there is inflammation or thickening in the bladder, it will be impossible to distend the bladder with water; and in the female, the urethra being short, it will not be possible to retain the water injected into the bladder. These circumstances considered, as also the great pain occasioned by the injection of fluid into the bladder, and which was carried to such an extent as even to burst the bladder; that the urine, pus, &c. &c. were often effused in the cellular substance contiguous to the

bladder, produced frequently sinuses, lodgment of matter and urine, spasm, &c.

"These circumstances being considered, induced Frère Côme to make a number of experiments on the dead body, the result of which was the present mode of operation.

"FRÈRE CÔME'S OPERATION.

"A METHOD TO EXTRACT THE STONE FROM THE BLADDER, WITHOUT THE INJECTION OF FLUID.

"*Situation of the Patient.*

"In the first part of this operation the patient is placed and secured as in the lateral operation; that is, his hands are tied to his feet; he is held by two assistants, one holding each thigh and foot, and a person supporting him behind.

"When the sonde-de-dard has been introduced into the bladder, it is to be held by the assistant, and the ligatures are to be taken from his hands and feet. The lower extremities are to be held and supported by assistants; the arms are to be brought behind the patient's head, and to be also held by assistants. Pillows are to be placed under the patient's head and shoulders.

A List of the Instruments invented by Frère Côme for the High Operation.

"1. A staff.

"2. A grooved director.

"3. A sonde-de-dard.

"4. A trois-quarts bistouri: this is a trocar, in which is contained a bistouri.

"5. A curved probe-pointed bistouri.

"6. A suspensor of the bladder.

"7. A bistouri cachée.

"8. Flexible gum catheter.

"9. Forceps of different kinds.

"A staff is introduced into the bladder, which is to be held by an assistant; a small opening is made in the perinæum.

"A second incision is made in the membranous part of the

ruethra, as close to the prostate as possible, on the groove of the staff; a finger is to be passed into the groove.

"The operator takes a grooved director in the right hand, and introduces it into the groove of the staff. He now takes the staff from the assistant, bringing the handle downward, as in the common operation, and passed the director into the bladder.

"The staff is now withdrawn.

"The sonde-de-dard is introduced into the bladder upon the director, which is to be withdrawn. The ligatures are now removed.

"An incision is now made through the integuments and fat, about three or four inches in length, in the direction of the linea alba from above downwards to the pubis.

"A trocar, in which there is a concealed bistouri, is passed into the linea alba close to the pubis.

"The concealed bistouri is pulled towards the navel, which cuts the lower part of the linea alba.

"The operator takes a scalpel with a blunt point, and introduces it into the incision; holds the handle with his left hand, and the back of the blade with his right. This he pushes forward, and divides the linea alba.

"The operator now takes the sonde-de-dard in his right hand, and pushes it upwards, by which means he elevates the bladder, and feels with his left hand for the instrument. Great care is to be taken that the sonde-de-dard is kept as near the pubis as possible, the bladder being elevated by the sonde-de-dard.

"The assistant pushes the stilet, which is concealed in the cannula of the sonde-de-dard, through the upper part of the bladder. The operator takes hold of the stilet, in the anterior part of which is a groove or director.

"He now takes a probe-pointed bistouri, and introduces it into the groove of this director, and makes an incision in that part of the bladder which is opposite the symphysis pubis. The stilet is now withdrawn. The index of the left hand is introduced into the bladder, which suspends it.

"A suspensor of the bladder is introduced, and given to an assistant to hold. The operator now withdraws his finger from the bladder, the bladder being suspended by this instrument.

"If the incision is not sufficient for the extraction of the stone, a bistouri cachée is introduced into the wound, which is enlarged.

"A flexible gum catheter is to be introduced, and the stone extracted."

When Mr. Carpue returned from a second visit to Paris, in the year 1818, he waited, he informs us, upon Sir Joseph Banks, in order to exhibit to him the apparatus for the high operation, and the cast of a large stone which had been extracted in this manner by Dr. Souberbielle. At Sir Joseph's he met his friend and old preceptor, Sir E. Home, who agreed immediately that such a calculus could not have been extracted by the lateral operation. In consequence Sir E. determined to have recourse to the high method on a boy who was waiting to be operated upon at St. George's Hospital. This soon took place; and Mr. Carpue was present, who tells us that the operation was much longer than it otherwise would have been, from the stone being in a cyst; yet still it was very short, compared with what the same operation would have proved in the lateral way. The operation lasted exactly seventeen minutes. The boy recovered, and is at this time in perfect health.

Upon the whole, then, Mr. Carpue concludes, that in by far the majority of cases, the operation which he witnessed at Paris, and which Sir E. Home so recently performed in this country, is far preferable to that commonly, and hitherto almost exclusively, employed by British surgeons; the great objections to which are, that we are working in the dark, with doubtful success, and lacerating and dividing parts to such an extent, and in such a manner, as often to be productive of fatal hæmorrhage and other serious consequences, one of the most common of which is wounding the rectum. The stone, he goes on to say, is more readily discovered by the high than the lateral method; and if it breaks, the particles can be extracted with more certainty: if too the stone be in a cyst, or situated above the prostate, it can with greater ease be found and extracted, without danger of including part of the bladder, or inducing a fistulous opening.

Mr. C. allows that the high operation cannot well be performed on a corpulent subject; that it is altogether out of the

question when there is scirrhus, or any other affection of the bladder, which should prevent the sonde-de-dard from raising the bladder above the pubis; but then, on the other hand, the lateral method could never be had recourse to where a stricture of the urethra should prevent the passage of the staff, or where the calculus is of a certain magnitude. In these cases, he adds, the high operation *must* be performed, or the patient is doomed to linger out a life of wretchedness.

Although our extracts have already been copious, and the present article, by consequence, threatens to be presented to us in the printed sheets of a disproportionate magnitude, we cannot refrain from presenting to our readers, at full length, Mr. Carpue's recapitulation of the several steps of the high operation, as now practised.

"A staff is introduced into the bladder.

"First, an incision is made through the integuments of the perinæum, and a small incision into the membranous part of the urethra; a director is introduced into the bladder, upon the staff: the staff is withdrawn; the sonde-de-dard is introduced upon the director into the bladder: the director is now withdrawn; the sonde-de-dard is held by an assistant. An incision is then made, three or four inches in length, through the integuments of the abdomen. The trocar-bistouri is passed through the linea alba, close to the posterior part of the pubis. The concealed blade is opened, by means of which the lower part of the linea alba is divided. A probe-pointed bistouri is introduced, through the opening which had been made by the concealed bistouri, into the lower part of the linea alba, and the incision is continued by means of this instrument. The operator takes the sonde-de-dard from the assistant with his right hand, and pushes it forward, by which means he elevates the bladder above the pubis. The assistant now holds the sonde-de-dard, and the surgeon with his right hand pushes the stilet, which is contained in the cannula of the sonde-de-dard, through the superior and anterior part of the bladder; he takes hold of the end of the stilet with his left hand, and passes a probe-pointed bistouri along the groove, which is in the anterior part of the stilet, and makes an incision in the superior anterior part of the bladder. He passes the index finger of his

left hand into the bladder, by means of which he supports it. The stilet is withdrawn from the cannula of the sonde-de-dard, which is now lowered and held by an assistant; the operator introduces the suspensor of the bladder, which is held by an assistant. The stone is now to be withdrawn with the finger and thumb, which, if small, is done with great ease. If the bladder is large, a finger is introduced per rectum, by which the bladder is elevated, and the stone more readily found. If the stone should be in an excavation, and the bladder is not of a very large size, it may be discovered with the finger, by means of which the surgeon will know whether a scoop, or what kind of forceps is indicated. If the stone should be of such magnitude as is represented in the case of widow Donneri, Frère Côme's forceps must be used; if the stone should adhere to the bladder, or be contained in a cyst, the means used by M. Baseilhac and Sir Everard Home should be resorted to. When the stone has been extracted, Dr. Souberbielle introduces a silver wire through the cannula of the sonde-de-dard, and passes it through the wound made in the linea alba; this is held while the sonde-de-dard is withdrawn; a flexible gum catheter is now passed into the bladder, through the wound in the membranous part of the urethra, by means of this wire; the wire is now withdrawn; the catheter is confined in this situation, by means of tapes passed round the thighs and pelvis of the patient; a bladder is tied to it to receive the urine. Though this method of introducing the catheter is done in a very short time, yet I think that if the point of the catheter were introduced into the sonde-de-dard, the sonde-de-dard might be brought through the opening in the linea alba, and by this means the catheter might be conducted into the bladder with the greatest facility; or the cannula of the sonde-de-dard might be made of flexible gum, which, in place of silver, would contain the stilet; and this might remain in the bladder, and the lower part might be cut off, thus answering every purpose.

"*Method of dressing the Patient.*

"A piece of soft linen, half an inch wide, and six or eight inches long, is to be introduced, by means of a pair of forceps,

into the bottom of the bladder; the edges of the wound are to be covered with lint: to prevent the urine excoriating the parts, the linen is to be allowed to pass over the pubis on either side, and by this means the portion of the urine which is not carried away by the catheter will be carried off by means of this linen.*

"Lint and light dressings are to be applied to the wound, and a bandage passed round the abdomen.

"Great care is to be taken that the catheter is kept open; a stilet should occasionally be passed. Much attention should be paid to the subsequent dressings. Usually on the third day the linen may be taken from the bladder, as by that time the greatest part of the urine will pass by the catheter. By this time the wound usually suppurates. Adhesive plaster may be applied, in order that the divided parts may be brought into contact. In the course of twenty years' practice, I have invariably found, that the after treatment of the patient is not of less importance to his life, than is the operation itself."

Time and comparative success must, of course, be the umpires in the great question now agitated; but we cannot, we confess, help feeling that much pain and risk might, in many cases, be saved by at least the occasional adoption of that method of operating, which the book now before us so highly recommends.

Our author concludes his volume by a few remarks on the three methods of puncturing the bladder; viz. above the pubis; by the perinæum; and per rectum: the last is, in by far the majority of cases, the one to be preferred: but Mr. Carpue states, that the only part where the bladder can be punctured with safety, per rectum, is a very short space beyond the prostate, between the vasa deferentia. This position is illustrated by an engraving. The present volume also contains etchings of some of the instruments formerly and at present used in lithotomy.

* "If you place a piece of linen in the bottom of a cup filled with water, and let the ends rest upon a plate, in three or four hours the whole of the water will be in the plate."

An Inquiry into the Nature and Properties of the Blood, as existent in Health and Disease. By C. Turner Thackrah, M. Roy. Col. Surg. and Lc. Soc. Aph. 8vo. pp. 132. London.

[From the London Medical and Physical Journal, for October, 1819.]

This work has been produced, the author states in a preface, in consequence of Mr. A. Cooper having offered to the gentlemen educated at the school of Guy and St. Thomas, a prize for the best dissertation on the blood. "I instituted some experiments on the subject," he continues to observe, "and stated the results which my observations afforded. This essay being so fortunate as to obtain the prize, I have been induced to present it to the public: and, since the late period at which I heard of Mr. Cooper's proposal prevented the Inquiry's comprehending, in the first instance, some points of importance, I have, during the last year, been endeavouring to supply the deficiency."

We have not often perused a work to which we could give more unqualified approbation. Extensive and sound erudition, great accuracy in all the necessary observations and experiments, comprehensive views, and a particular clearness of exposition, mark the character of the work; and, what is of especial importance, and which renders it interesting beyond the merely physiological relations of the subject, the author has seized every opportunity of making researches tending to the improvement of the practice of medicine; and he has adduced from them several novel and highly useful observations, which he has illustrated by his judicious remarks.

The circumstances of this being a successful prize-dissertation, and the subject being one respecting which a new and comprehensive treatise was so much required, deduced from researches after facts, uninfluenced by any preconceived hypothesis, will, we feel confident, induce medical practitioners in general to become possessed of the work: we shall therefore pass over in a rapid manner the chief part of it, that we may notice more at length that which is especially applicable to the

practice of medicine. An abstract of this may prove a fertile source of reference, on various important occasions.

After some general observations on the origin, character, and uses of the blood, the author notices its most remarkable physical characteristics: and, first, its coagulation on removal from the body, and its change from a homogeneous fluid to the division into the serum and crassamentum. Its proportion to the weight of the body, is next considered. "Keil," the author observes, "estimated it at one hundred pounds: others do not believe it to exceed eight pounds. Haller computes it at ten; Young at forty; and, in Cooper's lectures, its proportion to the solids of the body, is considered as one to sixteen or twenty." Eight or ten pounds, he justly remarks, must be concluded too small a quantity for the supply of the numerous vessels of the body, occupying so extensive a space; and, indeed, it seems to be shown by the quantity lost within a few days, spontaneously or abstracted by art, being frequently greater than that, without the destruction of life.

The question of the vitality of the blood, is next briefly discussed; which the author is disposed to decide in the negative. The arguments he adduces to this effect, are novel and ingenious. The advocates of the affirmative are, we believe, becoming daily less numerous.

On the subject of the chemical qualities of the blood, no original observations are adduced.

The next chapter is on the peculiarities of the blood in different classes of animals. The author first confirms the statement of former physiologists, that there is but little variation of its character in those of the higher orders. The *relative quantity* was found, generally speaking, to be less in birds, fishes, and the weaker animals, than in the larger and more muscular. No uniform disparity was found to exist in the *relative quantities of the serum and crassamentum;* but, the author states, "it appears probable, that a more complete examination would prove the crassamentum to bear a proportion to the strength and ferocity of the animal." With respect to the *periods of coagulation*, "a general inference might be drawn, that coagulation commences sooner in small and weak animals, than in the large and strong." Its *temperature* in the

horse, when flowing from a vessel, is 97°; in the ox, 100°—101°; in the sheep, 102°—103°; and in the duck, 107°. This, the author remarks, is conformable to the statement of Braun. No considerable variety exists in its *chemical qualities;* excepting that, according to Berzelius, that of the ox contains a smaller quantity of saline matter, and a larger proportion of azote, than that of man. Its *specific gravity* is nearly uniform. "The *red globules* exist principally in the more perfect animals: in the mammalia and birds, partly in fishes; but not generally in reptiles, insects, and worms. In some creatures, coloured blood is found in the vessels near the heart, while the rest of the body is supplied only with a serous fluid." "Of those creatures which want the red particles, most have *white* globules; but, in the lowest orders, even these cannot be discerned by the microscope." The blood of some animals is found, while circulating, to contain air-bubbles. In the land and sea tortoises, in some fish, in the hedge-hog, and the viper, this appearance has been asserted by respectable writers.—MORGAGNI, Ep. v. 22.

The *coagulation* of the blood is then particularly discussed. On this subject we find some original observations, possessing a considerable degree of interest. The author first notices the effects of chemical agents mingled with it on removal from the body. Medicines, internally administered, had no apparent influence on it. Stupefaction from opium does not affect it. It is induced readily, in proportion to its paucity. Agitation retards it. With respect to temperature, it concretes soonest at from 100°—120°; next at from 40°—50°; and last, and with a greater disparity, in that of from 60° to 90°. And the author thinks it worthy of remark, that the serum is most readily and copiously effused in the higher temperatures; and this, he believes, in regular gradation.

A subject which particularly engaged the author's attention, is *the comparative periods of coagulation, as influenced by the strength or weakness of the vascular action.* From various and repeated experiments, under different circumstances, on the blood of oxen, sheep, horses, dogs, and swine, it appears that the *blood coagulates slowly, in regular proportion to the tonic state, or that condition of the system in which the vital*

powers are strongest. It also appeared, that coagulation occurred soonest in *venous blood.*

The *causes of the blood's coagulation* constitute one of the most interesting parts of the enquiry; and it has been investigated by Mr. Thackrah with care and attention proportionate to its importance. We shall only adduce his conclusion respecting them; remarking, at the same time, that his grounds for it appear to be satisfactory, though we are unable to form any rational explanation of this phenomenon. It is "that the vital or nervous influence, is the source of the blood's fluidity; and its loss, the cause of coagulation." But this conclusion, it must be observed, applies to the vessels in which it is contained, not to the fluid itself. Indeed, the series of experiments that led the author to form this conclusion, appear to us to furnish very powerful arguments *against* the doctrine of the vitality of the blood.

The above opinion of Mr. Thackrah, we should remark, is similar to one advanced several years since by Mr. Charles Bell, in his Anatomical Lectures; and was then, we believe, considered to be merely visionary by many of his auditors. But the experiments of Mr. Thackrah seem almost to demonstrate its truth.

We now arrive at the chapter treating of the *changes produced by disease.* After some reflections on the degree of importance and certainty attached to them, the author treats of the *quantity* of the blood. This is a subject on which only probable suppositions can be formed, but they are in favour of its diminution under certain circumstances. The *colour* of the blood is frequently altered in a remarkable manner. Long continued hæmorrhages render it pale. Sometimes, chiefly observed in robust and muscular men, the venous blood is of a dirty-red colour; and it is also occasionally found to be florid. A darker, or livid hue of it is stated by authors to have been witnessed in *malignant* fevers. Several instances are related, or referred to, when it has been found so much lowered in *temperature*, as to be cold to the touch; and this without the patient apparently labouring under any sev re disease. The relative rapidity of its *coagulati n* has been already adverted to, and the cause of it exp.ained.

"*The firmness of the coagulation of blood*," the author observes, "has been considered a distinctive mark of the tonic state of the system; its greater tenacity, a characteristic of inflammation; and its looseness, a sure proof of debility." Although these marks cannot wholly be relied on, yet his experiments have shown that they are in general indicative of the states of which they are said to be signs. Much difference in its appearance will arise from the size of the vessels in which it is received. "The fluid of blood received in a bason, is usually in greater proportion than that contained in a small cup; and, of course, the cake in the latter is looser than that of the former." And, as a general practical axiom, he says, "If, on the division of the coagulum, at the expiration of from eight to twenty-four hours, there ensue no considerable effusion of serum, and the crassamentum remain extraordinarily firm, I believe that further depletion is fully warranted." He next adduces the results of the experiments of Dr. Langrish, and the observations of Dr. George Fordyce, respecting the tenacity of the coagulum in different diseases; from which it appears, that in acute maladies it is generally inordinately dense.

"We frequently," the author proceeds to remark, "observe much benefit derived from bleeding, even when the crassamentum is soft and yielding; nor should we, in such cases, hesitate to repeat the depletion, if other circumstances indicate its propriety. Dr. Watt, in his cases of diabetes, remarks, that great advantage accrued from venesection, though the coagulum was loose and black; and that, on repeated evacuations of blood, the crassamentum became much firmer, and of a more natural hue."

Here, of course, blood-letting produced those changes, by removing the diseased state on which the alteration of the qualities of the blood depended; for such a condition of the blood is not common in diabetes. It is usual to find it present the sizy coat in that disease.

The *proportion of serum and crassamentum*, is next considered. This is usually in a ratio *inverse* to the strength of the system. Two very interesting observations are adduced, which show that the *serum is relatively increased during the*

continuance of bleeding, and in a considerable degree in the space of a few minutes. Dr. Weatherhead suggested the following query to the author respecting this circumstance:

"Does not the abundance of serum in the last-drawn cup, arise from the immediate affect of the bleeding, in rousing the energies of nature to absorb serum from the different cavities, and thus occasion the fact you have remarked? If this be the true cause, it will likewise account for the benefit derived from, and authorise the detraction of blood in both sanguineous and serous extravasations, wherein the strength has not thereby been materially diminished. This absorption ought also to be more obvious in health, where nature acts unfettered by diseased associations."

The circumstance must, Mr. Thackrah conceives, originate either in the cause Dr. Weatherhead suggests, or in the greater disposition to concretion which the blood assumes, when the system is reduced. "The latter opinion," he continues, "is the least probable; for, if the increased proportion of fluid in the last received blood, arise merely from the speedy contraction of the crassamentum ejecting a greater quantity of serum than the first drawn, this substance would be firmer in the last than in the first."

The *mechanists* would readily explain the above phenomenon by the *vacuum* produced in the vessels by the abstraction of blood; whilst the *animists* will perhaps concur in the opinion of Dr. Weatherhead. Others will seize the fact as an important indication for practice, without attempting to form any conclusion respecting its cause.

The author next adduces a statement of the relative quantities of the serum and crassamentum, in various forms and stages of disease; which is consonant with the general account already given.

We now arrive at another very interesting part of the subject,—*the coat of yellowish size, which sometimes covers the surface of the blood.* We cannot extend the limits of this analysis much further; and therefore, to avoid repeated particular remarks, we state, that the whole of the observations and experiments contained in this chapter, tend to show the truth and importance of the opinions of Bordeu, given in the last

number of this Journal. We hope to find them become the subject of discussion, and shall therefore at present briefly pass over this part of the enquiry.

Mr. Thackrah satisfactorily shows, that the sizy coat *does not arise from any particular tenuity of the blood*, as stated by Hewson; and this physiologist proved, that *increased gravity of the cruor was not* the cause. And though the author is disposed to infer, that the formation of the buff-coat in inflammatory diseases depends on the blood's indisposition to coagulate, such tardiness of concretion allowing the red particles to subside, yet he acknowledges that an observation of Dr. Whiting militates against this opinion. "He found a fibrous tunic near the *bottom* of the crassamentum in one case, and this phenomenon to be wholly absent in another, though the blood remained fluid from fifteen to thirty minutes." We cannot here pass over one circumstance that we have ourselves almost constantly observed, and in instances of which the works of every writer on inflammatory affections abound; which is, that the buffy coat is not witnessed in the first or second day of the disease, yet it afterwards appears, even though the severity of the malady has become much alleviated. The observations and experiments of Mr. Thackrah, in regard to this part of the subject, are not quite perfect; since he has not noticed the stage of the disease in which the blood forming the subject of them was drawn.

The author has also been led to doubt the truth of the opinion, attributing the buffy coat to *increased agitation of the blood.*

Mr. Thackrah adduces the following queries respecting it; the analogy of one of which to some opinions we have already noticed will be easily discerned.

"Does the additional quantity of fibrine, acquired by inflammatory blood, remain for some time unassimilated, and thus retard those changes which it is natural for this substance to assume?

"Or, rather, shall we believe that the vital energy is preternaturally excited in active disease, and thus, by its effects on the blood-vessels, protracts the period of coagulation?"

It must not be forgotten, that there is an increase in the relative quantity of the fibrine to the serum, *in the latter stages*

of most acute diseases; and, also, that the sizy coat appears in diabetes, when the vital energy is much depressed, and when the blood is not in a state of inordinate tenuity.

We pass over several judicious remarks relative to the application of those facts in the practice of medicine, to the consideration of the *changes produced in the quality of the serum* by disease. On this subject Mr. Thackrah adduces some interesting observations from other authors, but nothing novel of much importance. The same remark will apply to the subject of *depositions from the blood* in disease.

That there is a disposition to *putrescency* of the blood in many diseases, is satisfactorily proved, in spite of the scepticism and objections of those who *absolutely* abandon all considerations of a humoral pathology. This *putrefactive process* Mr. Thackrah believes to be influenced by the state of the system. He says, "it takes place most readily in a debilitated condition. Blood subtracted during inflammation, assumes this change later than blood during weak vascular action." This would lead us to attribute it to the same laws that regulate the coagulation of the blood.

The rapid and partial analytical sketch we have here given of the work of Mr. Thackrah, is produced, as we before observed, rather from a desire that our journal should comprise some of the valuable matter it contains, than from an attempt to convey, in an abstract, any thing like an appropriate idea of its contents.

Hints of a new Idea of the Nature of the Cellular Tissue. By G. M. De Felici, M. D. Public Demonstrator and Conservator of the Collection in the Museum for Pathology and Comparative Anatomy, in the University of Padua. 8vo. Padua, 1817.*

Although, as we have already observed, it was our intention to give a generally comprehensive view of the pathological

* *Cenni di una Nuova Idea sulla Natura del Tessuto Cellulare.* Del Dottore G. M. De Felici, Pubblica Rèpertitore è Custode de' Gabmetti Patologico e di Notomia Comparata, nella I. R. Universita di Pavia. 8vo. Pavia: Bizzoni. MDCCCXVII.

doctrine at present prevalent in Italy,* before we particularly noticed treatises on distinct subjects; yet we have been induced to deviate from that intention on the present occasion, from the observations contained in this little pamphlet being almost the only ones of importance relating to the structure of the elementary tissues, that have been advanced since the time of BICHAT; and from the consideration that they may be useful to the reader in his reflections on the work of Dr. BARON. We shall present our readers with the substance of it, without adducing any particular observations of our own, excepting some references to authors who have treated on, or produced illustrations of, the same subject.

The cellular texture enters into the formation of every other part of the human body; and of many of them it constitutes the greater proportion of their structure. It was long since considered by some physiologists as a net-work of vessels, more or less pervious to the fluids; but this opinion has not been generally adopted. HALLER regarded it in a different manner: he says, "*Vasa, quæ tunicas pingunt, accessio sunt cellulosæ telæ, neque constituunt naturam membranæ, sed membranæ per cellulosam telam innatæ superadduntur.—Cellulosa fabrica fibris fit laminisque solidis omnibus, neque cavis, neque vasculosis, etsi vasculis adcedentibus pingatur.*"† A similar notion was entertained respecting it by BOHN,‡ BORDEU,§ and BICHAT,‖ the principal of the original authors on this subject who have written since Haller. But Dr. Felici observes, the very accurate observations of some great anatomists seem to show the correctness of the first-mentioned opinion; and he adduces some peculiar to himself, that contribute to establish its propriety.

"RUISCH," the author says, "had already observed, that

* We are waiting for some important works that have appeared since our observations were made and arranged; and this will occasion the postponement of our Essays on this subject to the ensuing volume of this Journal.

† *Primæ Lineæ Physiol.* c. i.

‡ *De Continuationibus Membranorum.* Amstelodamiæ, 1763.

§ *Recherches sur le Tissu Muqueux, ou l'Organe Cellulaire.* Paris, 1767.

‖ *Anatomie générale. Système Cellulaire.* Art. i. § 1.

the interior parenchymatous structure of the spleen was nothing else than an aggregate of vessels; and he showed some specimens of that organ, injected according to his own mode, in which nothing could be seen but an admirable tissue of vessels, ramified in a prodigious manner; as SABATIER* has also stated. HEISTER injected, by the veins of the penis, the glans and corpora cavernosa, which were thus rendered in appearance, a plexus of venous vessels.† Similar injections made by Prof. REZIA are preserved in the anatomical cabinet in the university of Padua. But the conclusion I shall hereafter advance, is also founded on some other observations made by Prof. CAV. MORESCHI.

"The corpora cavernosa of the penis, from the most careful and repeated observations and injections made in the human subjects, and various animals, especially in the horse of Prof. PANIZZA, appear to be nothing more than a mass of vessels, forming layers, anastomosing with each other, and which give to those parts the spongy, alveolar, or cellular, appearance, those bodies present. The other cavernous structures, that of the clitoris as well as that of the papillæ of the breasts, are obviously of the same nature. The cavernous tissue which surrounds the vagina, *plexus vaginam pene totam ambiens*, is merely formed by a multitude of vessels, transmitted from the adjacent parts, communicating with each other by frequent and short anastomoses. The cavities seen within the texture of the uterus communicating together, which much resemble those of the spleen and the corpora cavernosa of the penis, and which are enlarged and distended during the time of menstruation and pregnancy, are also shown to be only vessels passing into that organ in a serpentine direction. The truth of these observations is clearly demonstrated by the beautiful preparations in the Anatomical Museum in our University."

May we not then consider, says Dr. Felici, that the cellular tissue is formed in the same manner as the spongy texture of the spleen, and the corpora cavernosa of the penis? Are not, making an abstraction with respect to size, the net-works, the

* *Traité complet d'Anatomie*, tome iii. *de la Rate.*

† *Compendium Anat.* tab. v. fig. 22, 25.

cellules, and the alveoli, the same in one as in the other? And why should we then regard their formation in a different manner? And are there not many circumstances which show the correctness of the opinion above advanced?

"If we observe the back of the hand," the author continues, "we see a tissue constituted solely of an extremely fine vascular net-work. All the arteries which are distributed in the membranes have also the same reticular figure. '*Fines arteriarum*,' says Haller, '*cylindrici, aut cylindricis proximi, ramulos producunt i eadem longitudine crebriores, plerumque in rete dispositos, ut quilibet ramus minoribus surculis cum utroque vicinorum anastomoses faciat. Ita in omnibus membranis reperitur.*' And, speaking of the veins, he adds, '*Rami majores venarum magis reticulati sunt ac frequentioribus anastomosibus, nec inter parva, sed inter maxima vasa, inter vicinas, dextras et sinistras, superiores et inferiores venas, ubique adparentibus coeunt.—In minoribus ramis, retibusque membranosis, viscerumque interiori fabrica arteriæ, venæque plerumque conjunctæ ambulant. Minus fere flexuosæ sunt.*'*

Many beautiful and fine injected preparations in the Museum at the University of Padua, some visible to the naked eye, others only by the aid of the microscope, as well as others furnished by Professor SCARPA, show in the most evident manner the cellular tissue of the face, the palms of the hands, the soles of the feet, the villi of the intestines, &c. to be nothing else than a congeries of vessels. "How surprising are the injections with mercury of the lacteals of the small intestines of the turtle, in the specimen contained in our Museum. In this preparation, presented by Prof. Scarpa, the lacteal vessels are so numerous, that it might be said the intestines of this animal are merely a congeries of those vessels; the metal shining through every discernible point of their surface. These injections would frequently succeed if the necessity of injecting the lymphatics by the branches, leaving the trunks to avoid the opposition of the valves, did not present a forcible obstacle.

"The injections of Ruisch prove the same thing; and yet these injections, however happily they may have succeeded, never fill the whole of the most minute vessels."

* *Primæ Lineæ Physiologiæ*, c. ii. §§ 38, 48.

The beautiful observations of Prof. Scarpa, too, on the nature and generation of the bones, prove that they are not formed by lamellæ, or fibres, as formerly believed, but by a reticulated, tomentous, cellular tissue:* these, with the injections of the bones in general made by the same physiologist,† seem to show that the basis of the osseous structure is nothing but an aggregate of vessels.

These notions respecting the formation of the cellular tissue are powerfully supported by the phenomena attending the formation of new parts in the healing of wounds, the union of fractures of the bones, the generation of false membranes and cysts, which are apparently wholly formed by fine vessels shooting into the effused lymph. These are circumstances that at least show the subject to be worthy of attention, in the manner the author has here pointed out. Dr. Felici considers that it is from an alteration in the state of these vessels, that thin, diaphanous, and pellucid, membranes become dense and opaque in inflammation. "Thus," he says, "the fine and transparent lamina of the conjunctiva, by dilatation, varicosity, elongation, and obstruction, of the veins, becomes thick and opaque, pulpy, flocculent, and of a reddish hue; so that, on a first view, it would appear that a new membrane was generated on the cornea."

Whenever the cornea is affected with cloudy specks, a congeries of varicose venous vessels will be found on the white part of the eye, corresponding to those specks, more elevated and convoluted than the other sanguineous vessels of the same order; and, if the cornea be clouded in more than one point of its circumference, there will be seen so many distinct plexuses of varicose venous vessels distributed on the eye, exactly corresponding with them. It appears, on a first view, that each of those venous congeries, so distinct from, and prominent above, all the rest, have forced a passage for the blood through the boundaries of the sclerotica to the cornea. "I have an eye preserved," says Prof. Scarpa, "taken from the body of a man affected with chronic varicose ophthalmia, accompanied with cloudiness of the cornea, who died of inflammation in

* *De Penitiori Ossium Structura Commentarius.* 4to. Lipsiæ, 1799.

† See *Index Rerum Musei Anatomic. Ticinienis Antonii Scarpa.*

the chest. Having injected the head by the arteries and by the veins, I found that the wax, with which the veins of the conjunctiva were well filled, had found a free passage, as well in the more elevated congeries of those veins, as in the more minute branches of the same congeries running in a serpentine direction on the surface of the cornea, in the precise spot where the cloudiness had existed; whilst, in all the rest of the circumference of the cornea, the injected wax was arrested by having found, in the confines of the cornea and the sclerotica, an insuperable obstacle. And it is wonderful to see in this eye, by the aid of the lens, the extremely fine net-work formed by the numerous venous branches in the limits between the cornea and the sclerotica, where they beautifully anastomose together in a thousand ways all around it, without any of them, excepting in the spot corresponding to the situation of the opacity of the cornea, passing the boundaries formed by strong adhesion, which the fine lamina of the conjunctiva there receives. The *pterygium* is originally produced by an increased dilatation of minute venous vessels passing over a particular part of the surface of the cornea; to this is then added a greater thickness than natural, and an opacity of the fine lamina of the conjunctiva which covers the cornea, on which those vessels are spread. The facility and promptness of the cure in these cases, by excision of the congeries of vessels on the conjunctiva, and a concentric incision at the margin of the cornea, by which this regains its original pellucidness in the short space of twenty hours, is a proof that this disease is kept up more by a varicose and elongated state of those vessels, still pervious, than by an effusion of serum or coagulable lymph in the delicate lamina of the conjunctiva which is spread over the external surface of the cornea."*

On this principle,—that is, from the generation of new vessels, or from the elongation of the extremities of those of the inflamed part,—the author observes, it is, that the generation of new membranes in inflammation depends; and he refers to preparations in the Museum of the University of Padua, in which membranes of that kind, formed in peripneumonia,

* See the new edition of the *Saggio di Osservazioni e di Esperienze sulle Principali Malattie degli Occhi, di* Antonio Scarpa; capi 7, 8, 11.

carditis, pericarditis, and abdominal inflammation, were filled with mercury by injection. Preparations illustrating this vascular union in the morbid adhesions occurring in inflammation, have been presented to it by Scarpa, Borda, and Joseph Frank. The following case contributes to the support of these opinions.

On dissecting a body, accompanied by Prof. Panizza, Dr. Felici says that he found a large, isolated, cystoid tumour in the left hemisphere of the brain, which contained about eight ounces of coagulable lymph mingled with pus of yellowish-green colour. The lateral ventricle, which was adjacent to it, was driven considerably out of its natural situation, in a downward and backward direction. The cyst which contained the fluid above mentioned, could not, apparently, have been formed by the membranes of the brain. On examining it particularly, Prof. Panizza found it to be composed of two laminæ, extremely vascular: the external one adhered to the cerebral mass by ramifications of vessels; the other presented a granulated appearance on its internal surface, was of a red colour, and looked indeed as if it had been injected.

"These facts, the author continues, will explain the nature of the tubercles found in the skin, which are merely a network of vessels, as is demonstrated by injections, with the exception of some nervous fibrili; which, though we cannot trace them, we know to exist from their effects.*

"We may thus explain the generation of new parts in wounds, by the elongation of the divided extremities of vessels into granulations, which restore the soft parts to their original form: the same means also produce the union of bones.

"We may thus explain the obstinacy of ophthalmia, the opacity and condensation of the conjunctiva in chronic varicose ophthalmia, in cloudy specks on the cornea, and in pterygium, by the excessive distension suffered by the vessels of the conjunctiva during the inflammatory state; by the varicosity and elongation of the vessels, principally the venous; and, consequently, by the condensation of the conjunctiva produced by the inflammatory action.

"We may thus explain the generation of new membranes,

* Caldani, *Institut. Physiol.* c. 16, §§ 224, 225, 227. Fattori, *Gulda allo Studio dell' Anatomia Umana*, §§ 367, 368.

the morbid adhesions between them and other parts, and the origin of cystoid tumours within the substance of the brain.

"We may thus also account for the *vasa vasorum*, which enter into the formation of the cellular tissue of the vessels themselves, of which HALLER observed, '*Arterias arteriæ habent in extremo imprimis celluloso textu, a vicinis undique arteriosis trunculis natas, multas, ramosas, reticulatas, omnes exiguas, in fetu etiam absque injectione plurimas.*'*

"The same fact will enable us also to comprehend more satisfactorily the sudden redness that tinges the face in the act of blushing, as well as the paleness of the skin and the cutis anserina from terror, or from cold; by the influence of the nervous action on the contractile power of the arteries, and the varieties in the transmission of the blood by them which thence arise.

"We may thus explain the growth, the preservation, and the death, of animals, according as these vessels are elongated, and give way to the impulse of the blood, or by degrees successively become closed and obliterated; and, lastly, according as their excitability shall become destroyed by the influence of stimulants.

"Lastly, we may thus more easily explain the secretions over the whole external and internal surfaces, and in the cavities of the body, and the re-absorption; and the readiness with which adipose matter is deposited, as Haller observed, '*Via ab arteriis ita proxima et libera est in cellulas adiposas, ut majuscula ostia eo hiare necesse sit, quæ dimittant mercurium, aerem, aquam, gelatinam, oleum, semper etiam in vivo animale pigrum. Non per longos aliquos propriæ fabricæ ductus excernitur, sed per totam arteriæ longitudinem undique exsudat, ut nulla pars circumpositæ cellulosæ telæ absque madore sit, quando arteria aqua repletur. Adeps calidus in arterias pulsus easdem vias facillime legit. Celeriter congeritur, argumento cito renascentis post acutos morbos obesitatis.*'†

"Considering, then," the author concludes, "the whole of this extensive tissue, not as a texture of no importance, except as a basis for sustaining the figure and firmness of the

* *Prim. Lin. Phys.* c. ii. § 32.
† *Prim. Lineæ Phys.* c. i. § 19.

body, but as an aggregate of vessels, the immediate organ of the secretions, of nutrition, of absorption, &c.; and viewing it entering into the formation of, and furnishing life to, every part of the system; we shall form a more noble, and probably more correct, idea of its uses in the animal economy."

These notions, Dr. Felici is careful to observe, are not advanced in a confident manner, but with the intention of exciting the attention of anatomists to some new researches on the subject. The observations he has adduced, seems to be sufficiently precise and important to lead to such an investigation; and the views they disclose of the structure of the body generally, certainly must facilitate our reasonings on what we witness of its functions.

Reflections on the Nature and Treatment of Cancer, supported by Practical Observations. By J. J. Lasserre, of Domme, Doctor in Medicine of the Faculty of Paris.*

[From the London Medical and Physical Journal, for November, 1819.]

This memoir contains some observations of remarkable interest to every medical practitioner, whatever general principles of pathology he may have adopted. Even those who consider that *cancer* is, in all cases, essentially a disease of a specific nature, or local morbid action modified by a peculiar diathesis of the system, will not think the cases here related unworthy of their serious attention. We shall therefore select two of these which are the most interesting, and such of the remarks of Dr. Lasserre as are expressly applicable to them; omitting his more general theoretical reflections, because we have already given our readers some ideas of them, on various occasions, in our extracts from the work of M. Broussais, of whose principles the author is a zealous partizan.

"A female peasant, of a dark complexion, robust habit, forty-seven years of age, married since her twenty-third year,

* *Réflexions sur la Nature et le Traitement du Cancer, avec des Observations à l'appui.* Par J. J. Lasserre, d. m. p. à Domme (Dordogne.) *Journal Universel des Sciences Medicales*, tome xiv.

and who had never been a mother, experienced, during eight months, great irregularities in the periods of the occurrence of the menstrual evacuations, which were always accompanied, too, by violent colics and severe pains about the loins. In the course of the month of May, 1817, she perceived a moveable tumour seated above the right nipple, about the size of a large plum. For twelve days she had suffered lancinating pains in the part, which induced her to come to consult me. This was in the ensuing June. The tumour was not painful to the touch; the nipple was redder and more sensible than that of the opposite side. I enquired whether she had ever experienced any external injury to the part, which might have given rise to it, and if she had adopted the bad habit of confining her person tightly by her dress. To these questions she replied in the negative.

"Reduced in this case to regard the affection as consequent on the derangement of the functions of the uterus, and as independant of local mechanic action, I proposed the extirpation of the tumour by the knife.*

"Forced to combat an affection which menaced a rapid progress from the violence which the pains had acquired for several days past, and the rapid increase of the size of the tumour, I advised the repeated application of leeches to the part itself, and, intermediately, the plaster *de Vigo cum mercurio*, mingled with that of cicuta;† an issue in the right arm; half a drachm of mercurial ointment to be rubbed on the same member; bleeding from the arm every eighth day; the use, after intervals of four days, of thirty grains of the pills of Bellost; a severely restricted diet, carried so far as to excite a sensation of *sharp* hunger; and cessation from the use of wine.

"On the 20th of July, thirty-six days from the commencement of the treatment, this woman again visited me. The tumour had diminished to about the size of a small nut; the pains were so slight as to be scarcely sensible; and the nipple was

* Should we, in symptomatic cancer, have recourse to the operation in the first instance?—*Note of the Editor of the Journ. Univers. des Sciences Med.*

† "In employing this topic, I had no other object than that of alleviating the pain by means of the sympathy of the skin with the parts which it immediately covers."

neither redder nor at all more sensible than that of the other side. Menstruation had been totally wanting. The treatment having succeeded beyond my expectations, I ordered its continuance, and added to it the use of whey containing the acetate of potash. Leeches were employed only twice in the ensuing month, as well as the bleedings from the arm.

"The 20th of August, no appearance of menstruation; there did not remain the slightest vestige of the tumour; the pains had ceased for three weeks. The only thing this woman now experienced from her disease, was the emaciation resulting from the forced abstinence, to which she had submitted with a degree of resignation truly exemplary. I have since then frequently seen her: she has regained her health and flesh, and her ordinary gaiety of disposition; not the slightest symptom of her disease has re-appeared. The breast in which the tumour was seated is, however, not so firm and plump as that of the other side. This woman still preserves the issue open, and wears the plaster on the breast, which she renews every month.

"I should by no means say that I have, on this occasion, cured a cancer of the breast; I am too well convinced that the disease was not a cancerous affection: but I believe I may state that it is highly probable that I have prevented the development of a disease of this nature. Almost all cancers have not a different origin; they are developed under the influence of identical circumstances. If it be demanded of what nature was this woman's disease, I reply, that it was chronic inflammation depending on the influence of sympathy from the uterus; or, rather, from the cessation of the functions of that organ, and the transport to the breast of the sensibility which then abandoned it, perhaps too suddenly.——

—"What I have said respecting chronic engorgement of the glands of the breast, is applicable to disorganizative affections of the neck and body of the uterus. Let us reflect on the circumstances which evidently give rise to cancer of the uterus, and examine them in a physiological point of view, and then see if that malady is not obviously the consequence of prolonged irritation? I need only mention difficult labours, and a want of proper relation between the genital parts of the two sexes in the act of coition. Every physician knows that cancer of

the uterus may occur as a consequence of these circumstances.

"This etiology is equally applicable to cancers of the stomach, the rectum, &c. In the greater number of these cases, we only find, if we trace the source of the evil, the slow progress of chronic inflammation, which leads to them as a result. Let it not be said that cancer is a malady *sui generis*, an *essential* malady, an *organic vice*. If all diseases had been regarded in this manner, medicine would have been always left in its infancy. The cultivation of pathological anatomy, the application of the laws of an enlightened physiology, the study of the language of the suffering organs, independently of the names by which diseases have been designated: such are the only means of making discoveries in medicine really useful to the welfare of patients and to the progress of science. It is to M. Broussais that we owe the first clear exposition of these principles, and the demonstration of the superiority of them by their application to the healing art.

"One case only of chronic engorgement, or, to speak the ordinary language, one case only of scirrhus of the uterus, has occurred to me in the course of my practice. Without saying any thing in prejudice of the propriety of the means I employed to combat it, I will here faithfully relate them.

"Mrs. T. forty-three years of age, of a dark complexion, prodigiously fat, and of an ardent disposition of mind, experienced for six months irregularities in menstruation. This lady was the mother of five children: the whole of her labours had been of the most easy and favourable description.

"In the course of the summer of 1817, Mrs. T. began to experience dull pains and a sensation of heat in the interior of the vagina. She complained of it to her husband, who made me acquainted with it, and who much aided my exertions to obtain a full account of the case, by the manner in which he urged her to disclose all the circumstances respecting it. She at length, with extreme difficulty, acknowledged that, for five months past, the approaches of her husband had been the cause of very severe pain. She experienced a sensation of weight in the hypochondres, thrilling pains about the loins and the groins.

and occasionally painful dartings in the lower part of the abdominal cavity, and in the interior of the genital organs. As she was alarmed at these circumstances, from the recent death of one of her friends, who, after symptoms which she said were similar, had been afflicted with cancer of the uterus, Mrs. T. permitted me to make an examination of the seat of the disease.

"I found the neck of the uterus hard, unequal, and painful on the slightest pressure: the body of this viscus appeared to be larger than ordinarily, although pressure immediately on it, or above the pubes, did not shew it to be possessed of unusual sensibility. The finger caused a sensation of burning pain in the vagina. The patient had never had any other flux from these parts than the menses and the lochiæ.

"I directed that six leeches should be applied to the vulva, and two days afterwards the same number to the groins, and so on alternately, until they were counter-ordered; a hip-bath daily, made with a strong decoction of poppy-heads; an enema morning and evening, of a slight decoction of the fresh leaves of belladonna; an issue in the left arm; and the most severe restriction in diet, with total abstinence from wine.

"After this treatment had been followed for fifteen days, the pains were much diminished. The patient endured the restriction from food with the greatest impatience; but, on my insisting on the necessity of this measure, she consented to submit to it. Fomentations with the decoction of belladonna were made every evening to the hypogastrium, in addition to the other measures.

"On the 16th of July, the patient had become considerably emaciated; the pains were much less intense. The enemas and fomentation to be discontinued. The leeches were applied only once during the rest of this month. The same severity of regimen. The food consisted solely of vegetables,—as carrots, the fruits of the season, and about four ounces of bread daily. Her drink was merely water and lemonade.

"The 12th of August, the patient suffers no pain, either in the loins, the abdominal cavity, or the groins. The neck of the uterus has regained almost its ordinary size; it is soft,

equal, and not painful on pressure; the sensation of burning heat is no longer experienced in the vagina. Menstruation has not appeared since a month before the treatment. The hip-bath to be continued; four grains of extract of cicuta to be taken daily, the abstinence to be less severe.

" The 8th of September, the little tumefaction of the neck of the uterus last noticed has totally disappeared. The treatment was here omitted, and the patient gradually resumed her ordinary regimen. I thought it my duty to represent to her husband the necessity of not again using cohabitation. Since this time no accident has appeared; and I think I may assert that the affected is cured.—

—" In all the cases I have related, it has been seen that I have insisted on abstinence from food to such an extent as to produce *sharp* hunger. The want of alimentation is one of the most favourable conditions for the cure of affections in which it is desirable to effect the re-entry into the circulation of the product of morbid accumulation of nutritive matter, in consequence of inflammation either acute or chronic."

The author concludes with observing, that he has found mercury very efficacious in fulfilling the latter intentions, when employed in the mode, and with the precautions, pointed out by physiology.

ORIGINAL PAPERS.

FOR THE ECLECTIC REPERTORY.

Case of Pneumonia Typhodes, with remarks. By JAMES NORCOM, M. D. of Edenton, North Carolina, in a letter to DAVID FREEMAN, M. D. New York—Communicated by DAVID HOSACK, M. D. of New York.

ON the 12th of January last, I was called on to visit Mr. Gabriel L. Stuart, residing in Martin county, on the river Roane Oak, about eight miles above Plymouth, and twenty-eight miles from this place. Upon enquiry, I learnt that he had been taken about five days before with a chill, which was succeeded by fever, pain in the side and breast, dyspnœa, a considerable expectoration of bloody mucus, great heat and thirst, and an overwhelming sense of debility and oppression. Before I saw him, Dr. Picot, a physician of Plymouth, had attended him; had bled him twice; given him an emetic, and two or three purges; applied two small blisters on his chest; and kept him pretty generally under the action of *common febrifuge* medicines. But he had not been relieved by any of these remedies: on the contrary, his debility had increased, and every symptom of his disease became aggravated. At the time I saw him, the following were the symptoms that manifested themselves in the case: a pulse beating about 132 strokes in a minute, quick and active, but without fulness, hardness, or tension; a confined, anxious, and hurried breathing; frequent fits of laborious coughing; a copious bloody expectoration: pain under the sternum extending to the left side; some thirst; a hot, but not a dry skin; irregular flushings of the face, with great restlessness and debility. His bowels were regular, and his urinary secretion natural, in quantity and quality. His

appetite was weak and fastidious. He was rather drowsy, and seemed a little agitated and incoherent, at times, though not delirious. In the intervals of his slumbers, from which he was easily roused, he had a singultus; yet he had scarcely any subsultus, or what is usually called catching of the nerves. After setting a short time in his room by the side of his bed, with my fingers on his pulse, and my eyes steadily fixed on his countenance, I discovered the flushing of his face to be sometimes on one side and sometimes on the other; and, now and then, a circumscribed red spot on one or both cheeks inclining to a livid colour.

In this state of things, reflecting that all the circumstances of the case had been growing worse under the remedies he had been using, and entertaining a very different view of it, from that upon which they had been prescribed, I immediately laid aside the febrifuges and evacuants, that had been directed for him, and applied a large blister over the sternum, gave him a dose of Dover's powder, and directed a cup of wine whey, with two or three ounces of the infusion of serpentaria, every two hours during the night. On the morning of the 13th, finding his pulse not increased in force, and still beating 120 strokes in a minute; his pain, cough, expectoration, and breathing, the same, or, if any thing altered, rather worse; and his restlessness and anxiety still distressing, I gave him a drachm of bark every two hours, in a glass of wine, interposing wine whey and sangaree as common drinks; and directed his room, which hitherto had been kept very cool,* to be warmed with a com-

* There certainly cannot be a greater error committed in practice, in typhus and typhoid diseases, than that of placing patients in cold or very cool rooms; more especially in the season of winter, when such diseases most frequently occur. I have uniformly recommended, in all such cases, that temperature which was most agreeable to the sick; and have found it, not only comfortable, but extremely beneficial. Even a temperature, which is perfectly pleasant to persons in health, will often require to be raised, to prevent our patients from being injured by the operation of cold—a principle the most hostile to the health of the human body, and the most difficult to be counteracted in its influence upon human diseases. If it were not essential to the *comfort* of our patients, in cold weather, to warm their chambers with a fire, it is undoubtedly necessary for the purpose of *change* and *ventilation*; For, nothing so certainly conduces to a change or renovation of

fortable fire. In a few hours after beginning with the bark and wine, his cough and expectoration nearly ceased, and his breathing, instead of becoming more difficult, contracted, or laborious, as my colleague apprehended would happen, seemed evidently to be better; his pulse had gained magnitude or volume, but still continued frequent and destitute of strength or hardness. In the evening I desired a glass of wine should be interposed between the doses of the bark, still using the whey and sangaree as auxiliaries, and administering nourishment at convenient times. About ten o'clock I gave him twelve grains of Dover's powder, with a tea-spoonful of paregoric elixir. He rested well during the night, had little or no thirst, and slept sufficiently; he had a pleasant breathing perspiration, and bore his medicines well; and on the morning of the 14th I left him apparently better, *in every respect*, directing that the bark, wine, and nourishment should be continued day and night, without intermission, and that opium and camphor, a grain of each, should be given him at night, and blisters be applied to his extremities, in the event of delirium supervening, or his pulse becoming more frequent or languid; and recommended, further, that French brandy toddy should be substituted for the whey and sangaree, as his ordinary drink. From this time, I was absent from him till the evening of the 15th, about six o'clock, when I saw him again, and found him with a pulse beating from 100 to 108 strokes in a minute, quick, and somewhat full, having gained considerably in volume, but still soft and compressible, and totally devoid of hardness or tension; his cough much abated; his expectoration moderate and less bloody; his pain greatly diminished; his skin moist and open,

the air in a sick room, or so certainly promotes atmospherical purity and circulation, as a good fire. It is moreover so palpably inconsistent, in the cases of persons labouring under diseases of weak or deficient vascular action, to expose them to the agency of a strong sedative, *for I must still use this unfashionable term*, that I am astonished the practice has not been more generally deserted. Heat is, indeed, the source of all circulation; and perhaps, of all action and vitality in animal bodies. How unwise, then, and unphilosophical must it appear to exclude it from the apartments of the languid and feeble victims of typhus, to whom it often affords pleasure, and always promises safety and relief.

and his breathing rather more composed, but still quick and contracted. He was directed to continue his medicines; and, as he had not had a discharge from his bowels since the morning of the 13th, and lest the large quantity of bark and nourishment accumulating in his intestines should oppress him, or lessen his ability to pursue the course prescribed, I advised a mild aperient injection to discharge their contents. It gave him a considerable evacuation, but was succeeded by a state of alarming debility;* and the fatigue of getting out of bed, which he could not be prevented from doing, nearly overcame him—so that his pulse for several hours afterwards beat from 120 to 126 strokes in a minute; his respiration became as hurried and oppressed as ever; his expectoration became more coloured; he grew considerably delirious; and had more subsultus than had occurred during his confinement, with a sensible increase of that very formidable symptom denominated singultus, or spasmodic sighing. I now gave him an anodyne, composed of a drachm of paregoric elixir and thirty drops of laudanum, applied blisters to his legs, and exhibited the bark, wine, and toddy, with renewed assiduity. By the morning of the 16th I succeeded in getting him back to the point at which he stood, before the exhibition of the enema, his pulse being reduced to 108 strokes, his breathing having become more quiet, and his strength having considerably improved. The same course of treatment was pursued until the morning of the 17th, when his pulse beat 102 strokes in a minute, his breathing being more slow and tranquil, his expectoration more free and easy, and less coloured; his delirium, pain, subsultus, and every other unfavourable appearance, having entirely disappeared. The paregoric and laudanum were repeated every evening from the time of its being first exhibited, and always enabled him to rest well. On the evening of the 16th, and twice on

* From the effect of a mild injection only, on this patient, it will appear satisfactorily, to every reflecting physician, that he could not have borne any kind of depletion; and I cannot help thinking it highly probable, that the smallest deviation from the plan pursued, or only a few hours suspension of the stimulants by which he was supported, at any time, between the sixth and ninth days of his disease, would have placed him out of the reach of all human skill and assistance.

each of the two succeeding days, he had a spontaneous discharge from his bowels, which made it necessary to combine a little laudanum occasionally with the bark. Pursuing this mode of management, I left him on the morning of the 19th, being the eleventh day of his disease, in a promising condition; having gained considerably in muscular strength; being free from subsultus and delirium; his cough unattended with pain; his skin soft and moist; his bowels regular, his appetite increasing; and his pulse* beating 90 strokes in a minute.

From the period last mentioned, Mr. Stuart continued to mend, and has for several days past been diminishing the quantity of bark and brandy prescribed for him, being able to take plentifully of nourishment, and to drink wine with satisfaction; indeed, I consider his case happily decided. Presuming, therefore, on his recovery, and regarding the practice in his disease, and its effects upon the predominant symptoms of it, as highly exemplary and remarkable, I think I cannot render you a more essential service, than by impressing it on your recollection as the most important, interesting, and instructive one, that can possibly occur to the observation of a practitioner of medicine: inasmuch as it proves, most incontestably, that all the symptoms, or, at any rate, a very large majority of them, which usually characterise a sthenic, or inflammatory disease, may occur in a state of asthenia, or weak mor-

* It will be observed, that in the history of this case, I have paid particular attention to the state of the pulse; and I wish it to be remembered that, in my description of it, I have not trusted in the least degree to memory; having, in every instance, noted the impression it made on my mind, while my fingers were on the artery, or in a very few minutes afterwards. An attention thus accurate and particular, in observing the action of the pulse, is all important in the management of typhoid diseases. The appearance of activity, so often remarked in such cases, is very apt to mislead the inexperienced practitioner; but, upon due examination, the want of strength in the pulsation of the artery will generally set him right. It is certain that no dependence can be placed on the appearances of the blood, which has almost always been found buffy, and often extremely dense and tenacious throughout the disease. In the case before us, it was pronounced to be very inflammatory; and every one must perceive, upon the most superficial survey of the complaint, that there was no indication, except that derived from the state of the pulse, which might not as well have led to the use of the lancet and other evacuants, as to the practice that was ultimately adopted.

bid action of the vascular system. For here we see heat, thirst, redness, pain, cough, and dyspnœa, the ordinary and supposed essential concomitants of inflammatory excitement, yielding to the impression of remedies which, under the influence of common pathological views, would seem most eminently calculated to increase them. How, then, shall we speak of such a disease, without banishing from our description the term inflammation altogether; or without giving up all our settled ideas respecting the nature, phenomena, and essence of inflammation? Surely that cannot be inflammation, in any ordinary or correct acceptation of the word, that may be relieved and cured by those agents which have been known invariably to increase its most acknowledged characteristics. If not inflammation, by what name shall it be designated to enable the physician to recognize and comprehend it? I have long been of opinion, from having seen and treated many cases similar to the one above detailed, that every morbid phenomenon produced by acute or active inflammation, excepting only some of the morbid states of the pulse, may be occasioned by a state of action or excitement diametrically opposite to that on which it has been generally supposed to depend; and that preternatural heat, pain, redness, tumour, thirst, itching, and burning, or smarting, are, *in many instances*, as certainly and truly the effects or attendants of deficient action, excitement, or circulation, in an asthenic or typhous state of the system, as they are of excessive force or excitement, in the sthenic or inflammatory state. In my studies and reflections on this subject, I have always felt inclined to object to the term inflammation, except in cases of external and local disease; and even here, I think it will be found necessary, upon a more diligent and careful examination of circumstances, to use it with greater regard to its common import, or to affix some new definition to it, in some of its less frequent forms and appearances.—For I am perfectly satisfied, that external as well as internal inflammations may be, and frequently are, so differently constituted or characterised, as to be extremely different, at different times —nay, directly the reverse of each other; and that, too, when

in all their sensible and more obvious signs, they very nearly resemble each other.

If the foregoing conclusions be correct, and inflammation in pneumonia may be typhus or synocha, that is, attended with feeble, morbid action, or with symptoms of elevated excitement, why may not the same thing take place in cynanche, in phrenitis, in hepatitis, in enteritis, and in every other case of fever with local inflammation, or that can be determined by local predisposition to any part of the human body? It unquestionably does, and I have no hesitation in saying that it is for want of a knowledge of this distinction, that our winter practice is so frequently unsuccessful. The distinction has long been observed and admitted in erysipelas and some other forms of external inflammation, but the principle on which it depends, seems not yet to have been clearly understood, or applied extensively enough, to diseases of a more general nature, affecting internal parts. Would you have proof that such symptoms as I have described, may proceed from debility or want of action? Lay your hand on the crimson cheek of a patient considerably advanced in typhus; and, as often as not, you will perceive it colder than the surrounding surface. If this does not satisfy you, apply your palm to the apparently glowing surface of a limb affected with erythematic inflammation, and you will often be sensible of a coldness below that of the medium in which it lies. But perhaps you are not yet convinced—then carry the cool draught from the crystal stream to a patient burning up with thirst in the last stage of cholera, where all action and circulation are gone, and ask the miserable sufferer, if his thirst is allayed, or his sense of inward burning relieved? What will be his answer? "Water—water, cold water:"—"Oh! I would give my estate for one gallon of water."

It would be easy to multiply observations and reflections on the particular symptoms of the case I have described; but they will readily suggest themselves to every attentive enquirer, and cannot be made more impressive or striking than they appear, in the simple and undisguised narrative in which they are given.

Edenton, North Carolina, February 1, 1820.

On the Effects of Prussic Acid in Pulmonary Consumption.—Extracted from a letter of R. BASSETT, Esq. to H. Atherton, Esq. of Philadelphia, dated Westmoreland, New York, February 18, 1820.

You ask me what effect the prussic acid has had?

Believing that it may be in your power to communicate it to some one labouring under phthisis pulmonalis, and thereby benefit suffering humanity, I will be as particular in answering your question as the limits of a letter will permit. The first account which I saw of the use of the acid was contained in a letter from professor Smith, of South Carolina college, to Dr. Henderson, of Raleigh, North Carolina. I will presume that this letter was published in Philadelphia, and has been seen by you. In my last, I informed you of what had been the state of my health for the greater part of the year past, more particularly during the summer. My case, I believe, was considered hopeless, not only by my friends, but also by the physicians who had occasionally seen me. When I saw Dr. Smith's letter, I informed my attending physician that I was desirous of trying the acid, that my condition was such then, that I was willing to be the subject of fair experiment. Professor Noges, of Hamilton college, undertook to make the acid, and I commenced taking it about the first of September. I began, according to the direction of professor Smith, with three drops per twenty-four hours, in as many ounces of cold water; and used in small quantities once, twice, or thrice in an hour, indifferently. I increased the quantity gradually, from three to ten drops, taken in twenty-four hours. I can now take ten or twelve drops in the course of ten hours, without any serious inconvenience. After having taken it two or three days, I began to feel the effects mentioned by professor Smith, as a sense of stricture across the breast, which was for several days quite painful, especially at night. The brain is sometimes also affected. The patient is relieved from these effects by suspending the use of it a few days, or by the discharge of some blood from the lungs. Would not blood-letting have the

same effect? After I had used the acid about ten days, I was taken with a painful diarrhœa, which continued for several days. This was considered by my attending physician, and others, as the last symptom of dissolving nature. From this time I began gradually to convalesce. The cough began to abate, and in the course of a few weeks almost entirely left me. The expectoration was less and easy; the wasting hectic subsided, and I could sleep quietly the greater part of the night; which I had not done for many months before, I may say for years. I have not lost six nights sleep since the first of October. I had not six nights quiet rest for the four preceding months. My appetite also became very good, so that I can relish any food, which I had not done for the last six months. To eat had been a most painful task. The spasms, pain, and swelling of the legs almost left me, and the hurried and painful respiration, which I suffered on any attempt to walk, became much less so. When I began to take the medicine I could ride but a short distance, and not then without one to help me in and out of the carriage, and to drive. In four weeks from this I could drive myself seven or eight miles and back, the same day, without inconvenience. Could I have avoided taking cold, I have every reason to believe that my convalescence would have been uninterrupted. When the cough has been brought on by cold, I have found the acid by far the most effectual remedy. Of its effects on others, I can say but little. I am the only one in this part of the country who has made a faithful trial of it. Dr. Hastings informed me a few days since, that he was now prescribing it in one or two other cases, with the most flattering and happy effects. The acid is probably one of the most virulent poisons in nature. It should, therefore, be used with great caution. Of this quality I know but little beyond my own actual experiment. I first tried it on a cat, by giving only two drops. The effect was instantaneous. It fell on one side immediately, being totally unable to move. I increased the dose; when, after partly rising and falling several times, like an intoxicated person, it got on its feet and walked off perfectly well. Not satisfied with this experiment, I tried it on another cat. I gave four

drops on a piece of meat. The moment it was swallowed, the cat instantly fell and died, in the course of about two minutes. From the appearance of the eyes in both cases, I should suppose that the brain was very much, if not principally affected. Quere—Is it not a powerful intoxicating stimulant? Some of the medical students, hearing of my experiments, exhibited a few drops to a large dog, which proved instantly fatal. It is said to be equally fatal when applied externally. Of this I know nothing certain. The instances mentioned are sufficient to shew that it would be a dangerous substance in the hands of careless patients. I have made use of two other remedies, which I will briefly mention. The *Lichen Islandicus*, or Iceland Liverwort, as recommended by Dr. Reece, of London, in his work on domestic medicine, vol. 1. p. 96: the precise title of this book I do not recollect. I think I have derived much benefit from the use of the lichen. I have also used the tartarized antimony in the form of an ointment, applied to the breast, which causes small eruptions, and is an easy substitute for blistering.

FOR THE ECLECTIC REPERTORY.

On the Medical and Physiological properties of Prussic Acid.

BY ISAAC DAVIS, M. D.

The poisonous character of prussic acid has long since been acknowledged, and the numerous cases of immediate death by subtle poisoning, may, with great justice, be attributed to the employment of prussic acid, or some of its compounds. This opinion is fully corroborated by the experiments of Coullon, Orfila, Brugnatelli, and Magendie. These celebrated men have shewn, that when prussic acid is administered to hot blooded animals, in its concentrated state, it destroys the irritability and contractility of their voluntary muscles. The few experiments which I have had an opportunity of making with the concentrated acid, fully confirm those of Dr. Magendie.

In imitation of Magendie's experiments, a few drops of the concentrated acid, prepared according to Gay Lussac's process, by Dr. Cullen of this city, were introduced into the posterior fauces of a good sized dog; the effect was more astonishing and instantaneous than had been even anticipated from Dr. Magendie's description of its powers: the animal fell on the floor and expired without a single convulsion. A few drops of the acid were thrown upon the eye of a cat, and the effect was as sudden and complete as in the former experiment. A rabbit died almost immediately from the puncture of a lancet imbued with the acid. I intended to multiply these experiments, and, at the suggestion of Dr. Cullen, I proposed to ascertain, by direct experiment, if the animal was susceptible of galvanic excitement, or not. I, however, improvidently deferred my experiments a day or so, and when I wished to resume my operations, I found the acid, which had at this time been made above three days, was entirely decomposed. Possessing very little skill in the manipulations of chemistry, I again applied to Dr. Cullen for an additional quantity of the acid; but I could not prevail on him to undertake the process a second time, in consequence of its great trouble and danger.

Presuming on the repetition of these experiments, I unfortunately overlooked some of the leading physiological phenomena produced by the acid. I did not, with any certainty, determine whether, according to Magendie, the animal retained life for any period at the expense of its external functions. Dr. Magendie, in studying the phenomena of poisoning by prussic acid, observed, that animals on which it had been made to act in more moderate doses, and in whom no traces of sensibility or muscular contraction could be found, would often continue to breathe freely for several hours, while the circulation remained scarcely altered. Indeed, says Magendie, it might be said that these animals were dead with regard to their external functions, yet still enjoyed life through their nutritive faculties.

This power of allaying general sensibility, without any apparent injury to the respiration and circulation, induced the be-

lief that this acid might be employed in diseases of great irritation and excessive sensibility.

These opinions, deduced from observing the effects of the acid on animals, soon led to its use in spasmodic affections, where local irritation would excite by sympathy constitutional affections.

As might be expected, it has been found particularly useful in spasmodic coughs, asthma, and in those of phthisis, where the patient is only debilitated by repeated bleeding and the use of other depletives; but before we enter into a detail of the many diseases in which it is found highly serviceable, we should first enquire, under what class of remedies it is to be ranked, and we will attempt to assign some more specific character than we have as yet bestowed upon it.

That it is a narcotic, no one will hesitate to allow; but that it is distinguished from every other article of that class of substances, simply requires an examination of its powers. We perceive a material difference in its operation from sedatives in general; it does not even in small doses excite those exhilarating effects which are universally ascribed to opium. It is true, that by subduing pain, it produces tranquillity of mind; by soothing the patient's sufferings it excites cheerfulness and comfort; it charms away agony and banishes despair. But in producing these effects it operates very differently indeed from opium and other narcotics; they stimulate in the first instance, and excite the sensorium in an unusual manner; they exercise a very marked influence over the sanguineous and other systems of the body. In fine, there are but few points of resemblance; few assimilating traits by which we can identify them with each other.

It would be trespassing beyond the proposed extent of this essay, to enter upon the examination of all the remarkable properties of this active substance; we will therefore content ourselves with a mere recital of the diseases in which it has been employed with advantage. It may not be unimportant to remark that the evidence in favour of its use is of the most respectable kind, derived from some of the most eminent practitioners of the continent of Europe and Great

Britain. Reference to Magendie's memoir, at one view gives us the history of its application to several cases of phthisis; and Drs. Manzoni and Borda bear ample testimony of its successful employment in consumptive cases; and Drs. Granville and Scudamore, and some other distinguished physicians, declare it to be, beyond all comparison, the most valuable remedy that has ever been made use of in the treatment of phthisis, and certain other complaints.

The medical world is justly sceptical with regard to the powers of new medicines. And when we consider the high but ephemeral reputation of some articles of the materia medica, we are warranted in receiving with great caution the reports of individuals, carried away perhaps by false zeal and enthusiasm.

Dr. Granville, who has had more experience than the other English practitioners in the use of this article, thus expresses himself with regard to its action on a patient exhausted by disease or the previous medical treatment: It exerts, says he, an immediate influence on the nervous system, it gradually diminishes all irritability, checks too rapid a circulation, and calms many of the symptoms of fever; if a dry cough is present it promotes expectoration in the first instance, and subsequently stops the cough itself; the spirits, before exalted, soon feel the quieting impression of the acid; they become subdued: the speech, the countenance, and even the expression of the eyes, assume the character of unusual meekness. There is relief from pain and actual suffering. But he tells us, that in some few cases the sedative effects are much more considerable; that there is in some instances an apparent entire prostration of strength, great lowness of spirits, and unwillingness to move, speak, or take food; life seems suspended; and indeed the patient expresses himself as if only half alive, yet the head and mind remain clear and intelligent; there is a total absence of pain; the heat of the skin is natural, and the pulse continues its course steadily and quietly; and, after some hours, the system returns to its original condition.

From what has been said of this article, it must appear that we cannot limit its application to any particular disease, but

that its use is as extensive as the indications of morbid irritability. I have had myself no experience with this acid; but Dr. Cullen informs me that a fit subject fell under his notice, whom he treated as directed by Magendie; the case was, however, desperate; disorganization of the lungs had taken place, and a palliative system was alone pointed out. The prussic acid answered every object in view, and corresponded exactly with the histories of Magendie and Granville. The patient died, it is true; but he expressed great gratitude for the mitigation of his sufferings. The acid was prepared according to Vauquelin's process: two drops dissolved in a table spoonful of mucilage were at first given twice a day, but gradually increased to sixteen in the twenty-four hours.

BIOGRAPHY.

A Tribute to the Memory of the late President of the Literary and Philosophical Society of Manchester. By WILLIAM HENRY, M.D., F.R.S., &c. &c.

[This account of the life of the late Mr. WILLIAM HENRY was read to the Literary Society of Manchester, in April 1817.]

[From the Quarterly Journal, for October 1819.]

THE following tribute to the memory of the late President of the Literary and Philosophical Society of Manchester has been drawn up in compliance with a request, expressed to the writer from the chair, at an early meeting during the present session. It would, on some accounts, have been more satisfactory to him, that the office should have fallen into other hands. But, conceiving a compliance with the requisition to be a duty, which he was not at liberty to decline, he has endeavoured to execute it with all the impartiality and fidelity in his power; and he trusts to the candor of the Society for that share of indulgence, which he may reasonably claim, in speaking of one to whom he was so nearly allied.

The late Mr. Henry was descended from a respectable family, which for several generations, had resided in the county of Antrim. His paternal grandfather commanded a company of foot in the service of James the Second; and during the disturbed times, which, in Ireland, succeeded the revolution, was shot by an assassin in his own garden. The father of Mr. Henry, then an infant scarcely a year old, was taken under the generous protection of a neighbouring nobleman * who continued it to him during the remainder of his life; and, after being educated in Dublin at his lordship's expense, was brought over by him into Wales, when he had nearly attained the age

* Viscount Bulkley.

of manhood. Having there, a few years afterwards, married the daughter of a respectable clergyman of the establishment, they sought the means of support by jointly engaging in the education of females, and for many years conducted a respectable boarding-school, first at Wrexham in North Wales, and afterwards in Manchester.

It was at the former place that Mr. Henry was born, on the 26th of October, O. S. in the year 1734. For some years he remained under the tuition of his mother, who was admirably fitted for the task, and of whom he was always accustomed to speak with the warmest affection and gratitude. At a proper age, he was sent to the Grammar school of Wrexham, at that time in considerable repute. There he was fortunate in having for his first classical instructor, the Rev. Mr. Lewis, whose virtues and talents are the subject of an elegant Latin epitaph, copied by Mr. Pennant into his *Tour through Wales.** At this school Mr. Henry remained for several years, and made such proficiency in his classical studies as to have attained the foremost station, with the exception only of Mr. Price, who was afterwards well known as the keeper of the Bodleian Library in the University of Oxford.

The inclination of Mr. Henry from early life led him to the church; and it was determined that, on leaving school, he should remove to Oxford. The day of his departure was accordingly fixed, and a horse was provided for the journey. But as the time drew near, his parents, who had a numerous family, and were far from being in affluent circumstances, grew discouraged at the prospect of expenses that were unavoidable, and at the uncertainty of eventual success. While they were thus hesitating, Mr. Jones, an eminent apothecary, of Wrexham, decided the point, by proposing to take Mr. Henry as an apprentice; and to this measure, though deeply feeling the disappointment of long indulged hopes, he could not deny the reasonableness of assenting. With Mr. Jones he continued, till that gentleman died suddenly from an attack of gout, when he was articled, for the remainder of the term, to a respectable apothecary at Knutsford in Cheshire.

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In neither of these situations did Mr. Henry enjoy any extraordinary opportunities of improvement. The only book which he remembered to have been put into his hands, by either of his masters, was the Latin edition of *Boerhaave's Chemistry*, in two volumes quarto, a work which, whatever may have been its merits, was certainly not calculated to present that science to a beginner under a fascinating aspect. His reading was, therefore, entirely self-directed; and, by means of such books as chance threw into his way, he acquired a share of knowledge, creditable both to his abilities and his industry.

At the expiration of his apprenticeship, he engaged himself as principal assistant to Mr. Malbon, who then took the lead as an apothecary at Oxford. In this situation, he was treated by Mr. Malbon with the indulgence and confidence of a friend, and his time was chiefly spent in visiting patients of the higher class, a majority of whom were members of the University. Among the students at Oxford, were several who recognised Mr. Henry as a former associate, and who, though holding the rank of gentlemen-commoners, renewed their acquaintance with him, and offered him the most friendly countenance. His leisure hours were, therefore, spent most agreeably and profitably in the different colleges; and his taste for literary pursuits were encouraged and confirmed. At Oxford he had an opportunity of attending a course of anatomical lectures, in which the celebrated John Hunter, then a young man, was employed as a demonstrator.

From Mr. Malbon, who was become affluent, Mr. Henry received a strong mark of esteem and confidence in the offer of a future partnership. To have accepted this it would have been necessary that he should have qualified himself to matriculate, which would have required the completion of a residence of seven years. But other views in life, which were inconsistent with so long a season of expectation, induced him to decline the proposal; and, in the year 1759, he settled at Knutsford, where he soon afterwards married. After remaining five years at this place, he embraced the opportunity of succeeding to the business of a respectable apothecary in Manchester; where he continued, for nearly half a century, to

be employed in medical attendance for the most part on the more opulent inhabitants of the town and neighbourhood.

Soon after Mr. Henry's settlement in Manchester, the late Dr. Percival removed to the same town from Warrington. That eminent physician was early inspired with the same ardent zeal for the cultivation of professional and general knowledge, which afterwards so much distinguished him. Between Dr. Percival and the subject of this memoir, congeniality of taste and pursuits led to a frequent intercourse; and the moral qualities of both cemented their connexion into a friendship which continued, without interruption, until it was terminated by the death of Dr. Percival, in 1804. It was about the same period, that he formed an acquaintance with that excellent man, and upright magistrate, the late Mr. Bayley, of Hope-Hall, and much of the happiness of his future life was owing to the mutual esteem and confidence, and to the frequent intercourse, which continued to exist between them for more than thirty years.*

During his apprenticeship, Mr. Henry had manifested a decided taste for chemical pursuits, and had availed himself of all the means in his power, limited as indeed they were, to become experimentally acquainted with that science. This taste he continued to indulge after his settlement in life; and, after having made himself sufficiently master of what was ascertained in that department of knowledge, he felt an ambition to extend its boundaries. In the year 1771, he communicated to the Royal College of Physicians of London, "*An Improved Method of Preparing Magnesia Alba*," which was published in the second volume of their Transactions. Two years afterwards it was reprinted, along with essays on other subjects, in a separate volume, which was dedicated by Mr. Henry to his friend Dr. Percival.

The calcination of magnesia had, at that time, been practised only in connexion with philosophical inquiries. Dr. Black, in an essay which is still, perhaps, not surpassed in chemical philosophy as an example of inductive investigation, had fully

* An interesting biographical sketch of Mr Bayley, written by Mr. Percival, appeared in one of the volumes of the *Monthly Magazine* for the year 1802.

established the differences between magnesia in the common and in the calcinated state; but he does not appear to have made trial of the pure earth as a medicine, though several inconveniences, from its use in the common form, had long before been pointed out by Hoffman.* On this subject Mr. Henry's claims extend to the free disclosure of his improvements; to the early and strenuous recommendation of the medicinal use of pure magnesia; and to the discovery of some of its chemical agencies. It is but justice to him to state that his recommendation of its employment as a medicine was perfectly disinterested; for it was not till his work was printed, and on the eve of issuing from the press, that the preparation of magnesia for sale was suggested to him by a friend, in a letter relating to the intended publication, which is still preserved as a part of his correspondence. Before carrying this suggestion into effect, he thought it proper to consult Sir John Pringle, Sir Clifton Wintringham, Dr. Warren, and some other leading members of the College of Physicians, as to their opinion of the propriety of the measure; and he did not adopt it until those gentlemen had each declared it to be not more advisable on his own account, than on that of the public.

Soon after the publication of the small volume of essays, Mr. Henry found himself involved in a controversy, arising out of some remarks in the appendix, respecting which, as the subject was of temporary interest, it is unnecessary to enter into particulars. It is sufficient to state that the accuracy of some of his experiments, which had been called in question, was confirmed by the concurrent testimony of Dr. Percival and Dr. Aikin; and that the chemical properties, first ascertained by him to belong to pure magnesia, were considered, by Bergman and by Macquer, as worthy of being incorporated into their respective histories of that earth.

It was probably in consequence of the publication of these inquiries, that Mr. Henry was admitted into the Royal Society of London, of which he became a Fellow in May, 1775. The persons most active in promoting his election, were Sir John Pringle and Dr. Priestley; and he had the advantage not

* Hoffman, Oper. Tom. 4. p. 381.

only of the vote, but of the favourable influence of Dr. Franklin, who happened at that time to be in London. Several years afterwards, the same venerable philosopher, when in the 81st year of his age, presided in the meeting of the American Philosophical Society, at which Mr. Henry was elected a member, and again honoured with his suffrage.*

The writings of the celebrated Lavoisier were introduced by Mr. Henry, to the notice of the English reader in 1776. The earliest work of that philosopher was a volume, consisting partly of an historical view of the progress of pneumatic chemistry from the time of Van Helmont downwards; and partly of a series of original essays, which are valuable as containing the germs of his future discoveries. To this work, Mr. Henry added, in the notes, occasional views of the labours of contemporary English chemists. A few years afterwards he translated, and collected into a small volume, a series of Memoirs, communicated by Mr. Lavoisier to the Paris Academy of Sciences, when the views of that philosopher, respecting the antiphlogistic theory of chemistry, were more fully unfolded. In undertaking the translation of these works, he was influenced by a desire to place within the reach of English readers, among whom the knowledge of the French language was then confined to comparatively few, the pleasure and conviction which he had himself derived from these beautiful models of philosophical inquiry.

Notwithstanding the large share of professional employment to which Mr. Henry had now attained, he still continued to engage frequently in experimental pursuits, the results of which, at this time, were communicated to the world, chiefly through the publications of his friends Dr. Priestly and Dr. Percival. Of these, the most important were some experiments on the Influence of Fixed air in Vegetation, by which he endeavoured to show that though fixed air is injurious, when unmixed, to the vegetation of plants, yet that when mingled in small proportion with common air, it is favourable to their growth and vigour. The facts established by this enquiry, were com-

* This circumstance is stated in a letter from Dr. Rush to Mr. Henry, dated Philadelphia, 29th July, 1788.

municated to Dr. Priestley; and it is creditable to the candor of that distinguished philosopher, that he was anxious to make them public, not only for their general merit, but because in one or two points the results disagree with his own. "I am much pleased," Dr. Priestley replies, "with the experiments mentioned in your letter, and if you have no objections, shall be glad to insert the greater part of it in my Appendix, which I am just sending to the printer's. I the rather wish it, as a few of the experiments terminate differently from those that I shall publish, and I wish to produce all the evidence I can come at on both sides. The other experiments are very curious and will give much satisfaction."* The investigation was afterwards resumed by Mr. Henry, and made the subject of a paper, which is printed in the second volume of the Memoirs of this Society.

The occasion of Mr. Henry's next appearance, as the author of a separate work, arose out of an accidental circumstance. He had found that the water of a large still tub was preserved sweet for several months by impregnating it with lime, though, without this precaution, it soon became extremely putrid. This fact suggested to him an eligible method of preserving water at sea;† but as lime water is unfit for almost every culinary purpose, some simple and practicable method was required of separating that earth from the water, before being applied to use. This he ascertained might be accomplished at little expense by carbonic acid, the gas from a pound of chalk and 12 ounces of oil of vitriol being found sufficient for the decomposition of 120 gallons of lime water.‡ The only difficulty was in the mode of applying the gas on the large scale; but this was overcome by the contrivance of an apparatus, which Mr. Henry described in a pamphlet dedicated to the Lords of Admi-

* Letter from Dr. Priestly to Mr. Henry, dated Jan. 5, 1777.

† Dr. Alston of Edinburgh appears, however, to have been the first who proposed impregnation with lime, as a mean of preventing the putrefaction of water; and to precipitate the lime, he suggested the use of carbonate of magnesia.

‡ The water, however, for which these proportions were sufficient, could not have been completely charged with lime, for fully saturated lime-water would have required for decomposition nearly three times that quantity of chalk and oil of vitriol.

ralty. The proposal, in consequence of the zealous personal exertions of Mr. Wedgwood, who was then in London, met with due attention from the Commissioners for victualling his majesty's ships. The chief obstacle to its adoption in the navy was an apprehension, probably well grounded, that persons would scarcely be found on ship-board, possessing sufficient skill for conducting the process successfully. Since that time, the preservation of water at sea has been accomplished by the simple expedient of stowing it in vessels constructed or lined with some substance, which is not capable of impregnating water with any putrescible ingredient; for good spring water, it is well known, contains essentially nothing that disposes it to putrefaction.

The philosophical pursuits of Mr. Henry, not long after this period, received an additional stimulus by the establishment of the Society to which these pages are addressed; and by his anxious desire to fulfil his duties as a member of it. To him, on its being first regularly organized in the winter of 1781, was confided the office of one of the Secretaries. At a subsequent period, he was advanced to the office of Vice-President, and in the year 1807, on the vacancy occasioned by the death of the Rev. George Walker, F.R.S., he received from the Society, and retained during the rest of his life, the highest dignity which it had to bestow.

The "*Memoirs of Albert de Haller*," which were published by Mr. Henry in 1783, and dedicated to this Society, were derived partly from a French *Eloge*, and partly from information communicated by the late Dr. Foart Simmons. A more complete view of the life and acquirements of that extraordinary man might have been collected, at a subsequent period, from other publications of the same kind, which were addressed to different learned societies on the continent. In one respect, Mr. Henry appears to have taken too favourable a view of the character of Haller, in ascribing to him gentleness of disposition; for that illustrious, and in the main, excellent person, seems to have been a man of quick passions, and not sufficiently reserved in the expression of them; as may be gathered from his controversy with Dr. Whytt of Edinburgh.

Haller is represented, also, by his biographer, as afflicted with the personal defect of weak eyes; which, from a passage in his Physiology,* appears not to have been correct. "Aquæ puræ," he says, "qua ab anno ætatis 18 sola utor, tribuo, quod post tot in fulgendo sole susceptos microscopicos labores, omnibus sensibus, *et oculis potissimum*, non minus valeam, quam puer valui."

During the long season of Mr. Henry's activity as a member of this Institution, his communications to it were very frequent. Many of these were intended only to excite an evening's discussion, and having served that purpose were withdrawn by their author, but the number is still considerable, which are preserved in the Society's published volumes. As might be expected, they are of various degrees of merit, but there are among them two papers, which have contributed greatly to his reputation as a chemical philosopher†.

* Tom. vi. p. 240 Edit. 2. Lausannæ.

† The following is a list of Mr. Henry's Papers, that are dispersed through the printed Memoirs of this Society:

In Vol. I (1.) An Essay on the Advantages of Literature and Philosophy in general, and especially on the Consistency of Literary and Philosophical with Commercial Pursuits.

(2.) On the Preservation of Sea Water from Putrefaction, by means of Quicklime.

(3.) On the Natural History and Origin of Magnesian Earth, particularly as connected with those of Sea Salt and Nitre, with Observations on some Chemical Properties of that Earth, which have been hitherto unknown or undetermined,

In Vol II (1.) Experiments on Ferments and Fermentation, by which a Mode of exciting Fermentation in Malt Liquors, without the aid of Yeast, is pointed out; with an attempt to form a new Theory of that Process.

(2.) Observations on the Influence of Fixed Air on Vegetation, and on the probable Cause of the Difference in the Results of various Experiments made for that purpose.

In Vol. III. (1.) Observations on the Bills of Mortality for the towns of Manchester and Salford.

(2.) Case of a Person becoming short-sighted in Advanced Age.

(3.) Considerations relative to the Nature of Wool, Silk, and Cotton, as Objects of the Art of Dyeing; on the various Preparations and Mordants requisite for these different substances; and on the Nature and Properties of Colouring Matter—Together with some observations on the theory of Dyeing in general, and particularly the Turkey-Red.

New Series, Vol. II Remarks on Mr Nicholson's Account of the Effects produced at Swinton by a stroke of Lightning. And

The Essay on Ferments and Fermentation is valuable, not for the theoretical speculations which it contains, for these have been superseded by subsequent discoveries; but for a few facts of considerable importance. It was at that time believed that the infusion of malt, called *wort*, could not be made to ferment, without the addition of yeast, or barm; but Mr. Henry discovered that wort may be brought into a state of fermentation, by being impregnated with carbonic acid gas. By a fermentation thus excited, he obtained not only good beer, but yeast fit for the making of bread; and from separate portions of the fermented liquors, he procured also ardent spirit and vinegar, thus proving that the fermentative process had been fully completed. He found, moreover, that flour and water, boiled to the consistence of thin jelly, and impregnated with carbonic acid in a Nooth's machine, passed into fermentation, and by the third day had assumed the appearance of yeast, for which it served as a tolerable substitute in the baking of bread.

The other memoir, which is distinguished by its value and importance, is entitled, "Considerations relative to the Nature of Wool, Silk, and Cotton, as Objects of the Art of Dyeing; on the various Preparations and Mordants requisite for these different Substances; and on the Nature and Properties of Colouring Matter."

After having given a general view of the history of the art of Dyeing, Mr. Henry, in this elaborate essay, examines the theories that had been framed to account for the various facility and permanency with which different substances attract colouring matter. He demonstrates the futility of these hypotheses, that explained the facts by supposed peculiarities of mechanical structure in the materials to be dyed; and suggests the probability, that the unequal powers of absorbing and fixing colouring matter, manifested by wool, silk, linen, and cotton, depend on the different attractions inherent in those substances as chemical compounds, for the various colouring ingredients. All the preparatory operations, though differing

And a Paper, printed in this volume, entitled, Memoirs of the late Charles White, Esq. F.R.S. ,chiefly with a Reference to his Professional Life and Writings.

from each material, have, he apprehends, one common object, *viz.*, the removal of some extraneous matter, which, being already united with the substance to be dyed, prevents it from exerting its attraction for colouring matter. The ultimate object of these preliminary steps, he states to be the obtaining a white ground, that may enable the colours to display the full brilliancy of their several tints. To explain the preparation of cotton for the Turkey-red dye, he endeavours to prove that cotton requires, for this purpose, to be approximated, in composition, to the nature of an animal substance. He next offers a classification of the *Materia Textoria*, and some general speculations on the nature of colouring matter.

In the second part of the Essay, Mr. Henry investigates the mode of action of those substances which, though themselves destitute of colour, are important agents in the processes of dyeing. Substances of this kind had received, from the French dyers, the name of *Mordants*, because it was imagined that they corroded and removed something, which mechanically opposed the entrance of the colouring matter into the pores of the material to be dyed. To destroy this erroneous association, Mr. Henry proposes that the word *basis* should be substituted, as a general term, to denote every substance, which having an affinity both for the colouring matter, and for the material to be dyed, is capable of serving as an intermedium between the two; and that a specific epithet should be added, to distinguish each particular variety. In this essay, Mr. Henry, for the first time, explained the true nature of the liquor which is employed for affording the aluminous basis, prepared by mixing the solutions of alum and of sugar of lead. This liquor he showed to be essentially a compound of pure clay of alumine with acetic acid; and its superiority over a solution of common alum, for yielding the earthy basis in dyeing, he ascribes partly to the less affinity of the acetic, than of the sulphuric, for alumine, and partly to the greater volatility of the acetic acid, when exposed to a moderate increase of temperature. The remainder of the paper is chiefly occupied with the details of the operations then practised for dyeing Turkey-red; with a theory of the process, and with a general view of the mode of action of the individual mordants or bases.

The methods of dveing Turkey-red have been since much improved and simplified, though its theory is, even yet, far from being well understood. But the opinions inculcated by Mr. Henry respecting the action of mordants, evince a remarkable superiority to the prejudices with which he found the subject encumbered, and are indeed those which are still held by the latest and best writers on the principles and practice of dveing.

In the year 1783, an institution arose out of this society, which had great merit, not only in its plan and objects, but in the ability exerted by the several persons, who were concerned in their fulfilment. It was destined to occupy, in a rational and instructive manner, the evening leisure of young men, whose time during the day, was devoted to commercial employments. For this purpose regular courses of lectures were delivered on the belles lettres, on moral philosophy, on anatomy and physiology, and on natural philosophy and chemistry. Mr. Henry, assisted by a son, whose loss he had afterwards to deplore, and whose promising talents and attainments obtained for him, at an early period of life, a mark of the approbation of this Society,* delivered several courses of lectures on chemistry to numerous and attentive audiences. From causes which it is not easy to trace, but among which, I believe, may be reckoned a superstitious dread of the tendency of science to unfit young men for the ordinary details of business, this excellent institution fell into decay. Mr. Henry, however, continued his lectures long after its decline, until deprived of the services of his son, by the prosecution of views at a distance, when he found that his own leisure was not, of itself, adequate to the necessary preparations.

That the schemes of establishing in Manchester a College of Arts and Sciences (for so it was entitled,) was not a visionary project, but one which appeared feasible and promising to men of sense and knowledge at a distance, is shewn by the following extracts from letters addressed to Mr. Henry, in

* See Dr. Percival's eloquent address to Mr. Thomas Henry, junior, on presenting to him the silver medal of the Society.—*Memoirs of the Society*, Vol. II. page 513.

reply to his communication of the plan. "An attempt of this kind," the late Dr. Currie of Liverpool observes, "I think most praise-worthy; and for this, however the matter may terminate, the projectors will always be entitled to public favour and esteem. It is a bold enterprise, and of course in some degree doubtful. One thing appears to be probable;—that if the business is taken up as it ought to be by the public, you will soon find the propriety of extending your plan, so as to make it embrace every object of general education." Mr. Wedgwood strongly expressed his approbation of the undertaking. "The plan of your college," he says, "I think an excellent one, and from the populous and commercial state of your town —from the apparent utility of the Institution—from the elegance and propriety with which it is announced—and from the known characters of the gentlemen who are engaged in it, I can scarcely entertain a doubt of its meeting with success." Greater perseverance would perhaps have gradually softened, and finally subdued, the prejudices that seem to have existed against the union of commercial with literary or philosophical pursuits,—an union which, under proper regulation, adorns and dignifies the character of the merchant, without, it may be hoped, diminishing his usefulness, or interfering with the prosperous management of his affairs.

Besides the lectures on the general principles of chemistry, Mr. Henry delivered a course on the arts of bleaching, dyeing, and calico-printing; and to render this course more extensively useful, the terms of access to it were made easy to the superior class of operative artisans. It was at this period, that the practical application was made in France of a philosophical discovery to one of the arts which Mr. Henry was engaged in teaching, that shortened, by several weeks, the duration of its processes. In 1774, Scheele a Swedish chemist, distinguished by the number and great importance of his contributions to chemical science, discovered, in the course of some experiments on magnesia, the substance known successively by the names of dephlogisticated marine acid, oxy-muriatic acid, and chlorine. During several years afterwards, its properties were not applied to any practical use, until its power of discharging vegetable colours suggested to M. Berthollet, of

Paris, its employment in the art of bleaching. The first successful experiments with that view were made by M. Berthollet in the year 1786, and, with a liberality which confers the highest honour upon him, he freely communicated his important results, not only to his philosophical friends, but to those who were likely to be benefited by them in practice. Among the former was Mr. Watt of Birmingham, who happened at that time to be in Paris, and who was the first person in this country to carry the discovery into effect, by bleaching several hundred pieces of linen by the new process, at the works of a relative near Glasgow. Mr. Henry also, having received an indistinct account of the new method, but not knowing precisely in what it consisted, immediately set about investigating the steps of the operation; and in this he was fortunate enough to succeed. Soon afterwards, an attempt was made by some foreigners, who themselves had acquired their information from Berthollet, to turn the process to their own advantage, by obtaining a patent; and having failed in that, by applying for a parliamentary grant of an exclusive privilege of using it for a certain number of years. Against the former, a strong memorial, which is now before the writer, was presented by Mr. Henry to the Attorney and Solicitor-General; and effectual opposition was made to the latter, by a public meeting of the inhabitants of Manchester, on the ground that the whole process had been successfully carried into effect by Mr. Watt, Mr. Henry, and Mr. Cooper.*

Having satisfied himself of the practicability and advantages of the new method of bleaching, by carrying it on upon a scale of sufficient extent, Mr. Henry prepared to embark in a much larger establishment for the purpose. The connexion, however, which he entered into with this view, having disappointed his just expectations, and the further prosecution of it being inconsistent with his professional employments, he abandoned the project, and contented himself with imparting the knowledge he had gained to several persons, who were already ex-

* The reader, who is interested in the history of the introduction of chlorine and its compounds into use in bleaching, is referred to a note in Dr. Brewster's *Edinburgh Encyclopædia*, ART. BLEACHING; and to Dr. Thomson's *Annals of Philosophy*, Vols. 6 and 7.

tensively engaged in the practice of bleaching, by the then established methods.

Mr. Henry had now reached a period of life, when the vigour of the bodily powers, and the activity of the mind, begin, in most persons, to manifest a sensible decay. From this time, however, though he did not embark in new experimental inquiries, yet he continued for many years to feel a warm interest in the advancement of science, and to maintain an occasional correspondence with persons highly eminent for their rank as philosophers, both in this and other countries.* His medical occupations had greatly increased, and, for a further interval of fifteen or twenty years, he had a share of professional employment, which falls to the lot of very few. This, and the superintendence of some chemical concerns, prevented him from attempting more than to keep pace with the progress of knowledge. He was in no haste, however, to claim that exemption from active labour, to which advanced age is fairly entitled, and it was not till a very few years before his death, that he retired from the exercise of the medical profession.

The summers of the years 1814 and 1815 were spent by Mr. Henry in the country, a mode of life, which, now that his season of active exertion was passed, was peculiarly suited to him, not only for the tranquil retirement which it afforded, but by its enabling him to indulge that sensibility to the charms of rural scenery, which can, perhaps, only exist in a pure and virtuous mind. His perception of these pleasures was at no period more lively, than after he had entered his 81st year. In a note, addressed to the writer of these pages, in the autumn of 1815, he describes, in animated language, one of the events, which so agreeably diversify the face of nature in the country. "Yesterday," he says, "we had one of the most beautiful appearances in the garden I ever witnessed. Every

* A considerable collection of letters to Mr. Henry from persons of this description has been preserved; but the subjects of them have, for the most part, been long ago brought before the public by their respective writers. The letters are chiefly valuable to the family of the deceased, as unequivocal proofs of the respect and esteem felt towards him, by those who were best qualified to judge of his merits. Many of them are from learned foreigners, with whom he had enjoyed opportunities of personal intercourse during their visits to Manchester.

leaf—every petal—every projecting fibre—was beset with a minute globule of water, and when the sun shone upon the flowers and shrubs, they seemed as if studded with myriads of brilliants. The gossamer, too, with which the hedges were covered, was adorned with the same splendid appendages. The cause," he adds, "of this disposition of moisture must, I suppose, have been electrical."

The winter of the year 1815, which Mr. Henry passed in Manchester, was a season of greater suffering than was usual to him; for though of a delicate constitution, yet he happily, even at this advanced life, enjoyed an almost entire exemption from painful diseases. During this winter, he was much distressed by cough and difficult breathing, and his bodily strength rapidly declined. In the spring of the following year, he returned into the country, but not to the enjoyments which he had before derived from it. He was unable to take his customary walks, and was oppressed by feelings, which induced him to look forward to the close of life, but with calm and dignified resignation. The event, which he had anticipated, took place on the 18th of June, 1816, when he had nearly completed his 82d year.

In estimating the intellectual character and attainments of the subject of this memoir, it is proper to revert to a period, several years remote from the present, but still within the perfect recollection of many to whom these pages are addressed. At that time, the quality of Mr. Henry's mind which was perhaps, most conspicuous, was a readiness of apprehension, that enabled him to acquire knowledge with remarkable facility. To this was joined a quickness in his habits of association, that peculiarly fitted him to perceive those analogies which, in chemical investigations, were chiefly relied upon as leading to the discovery of truth, before it was sought to be established on the firmer basis of an accurate determination of quantities and proportions. Without claiming for Mr. Henry the praise of great original genius, we may safely assert for him a very considerable share of that inventive talent, which is commonly distinguished by the term *ingenuity*. This was especially displayed in the neatness and success with which he adapted to

the purposes of experiment, the simple implement that chance threw in his way; for it may be proper to observe that, at no period of his life, was he in possession of a well-furnished laboratory, or of nice and delicate instruments of analysis or research. With these qualifications, he united a degree of ardour in his pursuits, which enabled him to triumph over obstacles of no trivial amount. And when it is considered that his investigations were carried on, not with the advantages of leisure, ease, and retirement, but amidst constant interruptions, and with a mind harassed by frequent and painful anxieties, —it will be granted, that he accomplished much more than might have been expected, from one so little favoured by external circumstances.

The acquirements of Mr. Henry are not limited to that science in which he obtained distinction. It was the habit of his mind, when wearied by one occupation, to seek relief, not in indolent repose, but a change of objects. In medical knowledge, he kept pace with the improvements of his time, and he occasionally by original publications,* contributed to its advancement. He had a share of general information, and a flow of animal spirits, that rendered him an instructive and agreeable companion. To the rich sources of enjoyment, which are opened by the productions of the fine arts, he was extremely sensible, not so much from an acquaintance with critical rules, as from a natural and lively susceptibility of those emotions, which it is the object of the poet and the artist to excite. By the native strength of his memory, unassisted by any artificial arrangement, he has acquired a knowledge of history, remarkable for its extent and precision; he was always eager to discuss those questions of general policy, which are to be decided, partly by an appeal to historical evidence, and partly by a consideration of the nature of man, and of his claims and duties as a member of society. No representation of him would, indeed, be complete, that failed to notice the animation with which he entered into arguments of this kind, or the zeal and constancy with which he defended his political opinions,—opinions which, in him, were perfectly disinte-

* Chiefly in the periodical Journals, and in the Transactions of some Medical Societies to which he belonged.

rested and sincere, but which perhaps disposed him to allow more than its due weight to the aristocratical part of our mixed government. It would be unjust to him, however, not to state, that no man could more cordially disapprove, or more unreservedly condemn, every undue exertion of power; or could more fervently desire the extension of the blessings of temperate freedom to all mankind. It was this feeling that led him to use his strenuous exertions as a member of one of the earliest Societies for procuring the abolition of the African Slave Trade; and when the great object was at length accomplished, he was affected with the most lively joy and gratitude on the downfal of a traffic, which had long been a disgraceful stain on our national character.

Of his moral excellencies, there can be no inducement to offer an overcharged picture to a Society, by many of whose surviving members he was intimately known and justly appreciated. Foremost among the qualities of his heart, was a warmth of generous emotion, which evinced itself in an enthusiastic admiration of virtue; in an indignant disdain and unqualified reprobation of vice, oppression, or meanness; and in the prompt and unrestrained exercise of the social affections. In temper, he was frank, confiding, and capable of strong and lasting attachments; quick, it must be acknowledged, in his resentment; but remarkably placable, and anxious, whenever he thought he had inflicted a wound, to heal it by redoubled kindness. No man could be more free from all stain of selfishness; more moderate in his desire of worldly success; or more under the influence of habitual contentment. This was in a great measure the result of his having early weighed the comparative value of the different objects of life, and his steady and consistent pursuits of knowledge and virtue, as the primary ends of an intelligent being.

In very advanced age, though his body was enfeebled, his mind retained much of that wholesome elasticity and vigour, which always belonged to it. He was still enabled, by the almost perfect preservation of his sight, to spend a great portion of every day in reading; but, at this period, he derived greater pleasure from works of literature, than from those of science, and especially from his favourite study of

history. During the winter immediately preceding his death, besides several standard historical works, he read with avidity one which had been recently published;* and entered into a critical examination of its merits, with a strength of memory and judgment, that would not have discredited the meridian of his faculties. In his moral character, no change was observable, except that a too great quickness of feeling, of which he had himself been fully conscious, was softened into a serene and complacent temper of mind, varied only by the occasional glow of those benevolent feelings, which continued to exist in him, with unabated ardour, almost to his latest hour. He still continued to receive great pleasure from the society of the young; and to them he was peculiarly acceptable, from the kindness and success with which he studied to promote their rational employments. It was his constant habit to take a cheerful view of the condition of the world; and on all occasions, when the contrary opinion was advanced, to assert the superiority of the times in which he had grown old, over the season of his youth; not only on the unquestionable ground of an increased diffusion of knowledge, but on that of the wider spread of virtuous principles, and the more general prevalence of virtuous habits.

Without encroaching on topics, which are wisely forbidden by the rules of this Society, it may be permitted to me to state, that Mr. Henry was from inquiry and conviction, a zealous advocate of Christianity.—About the middle period of his life, a change of opinion led him to separate from the established Church, to whose service he had early been destined, and to join a congregation of Protestant Dissenters. But in discussing differences of religious belief, he was always ready to concede to others that free right of judgment, which he had claimed and exercised for himself; convinced, as he was, that no conclusion to which the understanding may be led, in the honest and zealous search after religious truth, can, without the highest injustice, be made the ground of moral crimination or reproach.

* Dr. Stanier Clark's Life of James the Second.

Such is the view of the character of our late President, that has been taken by one, who, in forming it, may be supposed to have been influenced by feelings and recollections, not altogether favourable to an unbiassed exercise of the judgment. That it is coincident, however, with the estimate of others, from whom impartiality may be more reasonably expected, will appear from the following document, which, at the time when it was presented to the Society, declared the sentiments of all those members, who were in the habit of attending its meetings, or of taking an interest in its proceedings.

"To the Literary and Philosophical Society of Manchester.

"We, the subscribed, beg leave to present, to the Philosophical Society, a portrait of our President, painted by Mr. Allen, which having been in a public exhibition, has been declared by competent judges, to be not only a correct resemblance, but likewise an elegant production of art. Our wish is, that a suitable place may be assigned to it, in the room where our meetings are held: and that, if approved by the Society at large, it may be inscribed by them as an affectionate tribute of respect and gratitude to a man, universally beloved for his conciliating qualities and private worth, and peculiarly endeared to us, by the relation in which he stands, as one of the very few founders of the Society, whom an indulgent Providence has still spared to us; a Philosopher, to whose talents we owe much of the approbation which the public has bestowed on our labours; and a Member, whose zeal has, for a period of nearly thirty years, been uniformly exerted, in every station, to promote the peace and prosperity of the Institution over which he presides."

MEDICAL AND PHILOSOPHICAL INTELLIGENCE.

On Lunatic Establishments on the Continent of Europe.

[From Dr. H W. CARTER's Short Account of Hospitals.]

THE foundations for lunatics appear to have excited an unusual degree of interest in our author, and to that of Amsterdam he assigns a larger space than to all the establishments of Milan, Padua, and Pisa, put together. The medical officers are two physicians and two surgeons; the number of lunatics, fifty men and ninety women; but of the diet, or the funds, we have no account. The governors appear to control the conduct of the keepers with much strictness, and the moral treatment of the patients is pursued with great propriety and attention. We trust we shall not be supposed to advocate the system of severity. Unnecessary severity we deprecate; and all curtailment of the rational comforts of the patients we are decidedly averse from; but we must say, that there is a certain whining cant of humanity in which we hear many persons indulge, a compliance with the suggestions of which, seems much more calculated for the gratification of the visitors than the benefit of the patients.* A constant inspection by the proper authorities will go far to correct abuses, but these inspectorial visits are not of such modern date, or of such exclusively British origin, as we are in the habit of supposing. In the twelfth century, Benjamin, the Jew of Tudela, found a large building at Bagdad, called "the House of Mercy," destined for the reception of lunatics. They were in chains, it is true, but the

* A patient who is quiet the moment a strong iron handcuff is applied, will seriously injure himself or his keepers in a manacle of leather; he knows the inutility of struggling in the first, and he rarely loses hope of escaping from the latter.

magistrates made a monthly visitation of them, and suffered those who had recovered their reason to return to their friends.*

The due occupation of their time is a point of essential utility to lunatics. At the hospital appropriated for their reception at Berlin, the employment of every hour is fixed, and is announced to the patients by signal; each individual is fully occupied, and the strictest discipline is maintained. Perhaps, as has been observed to us by an enlightened friend, this military appropriation of time is not consistent with our English manners and ideas of liberty. This may be the case; but, in some shape or other, we are advocates for the regular employment of lunatics. It has often struck us, that what is true of other hospitals may be said of those for lunatics;—to make them places of recreation and indulgence, which the unfortunate inmates never experienced in their healthy state, is a very likely mode of ensuring their return, after a temporary absence at their own homes and ordinary occupations. There is an ingenious plan adopted at Sonnenstein Lunatic Asylum, near Dresden, an establishment where bodily exercise is looked upon as of great importance in the treatment. By this plan, sluggish patients, who often lounge about the fire all day, and sleep very little at night, are obliged to exert themselves; they are placed in a machine somewhat on the principle of the wheel formerly employed for the reception of turn-spit dogs; they are properly secured, to prevent all injury; after the first step made in this machine, the person within must necessarily continue to move his limbs as in walking. By these means, after some time, fatigue to any extent may be produced, and the patient often falls into a sound and refreshing sleep. Another very useful contrivance, and of great simplicity, is employed at Berlin to restrain furious patients. They are seated in a chair; the hands secured in proper gloves, but their feet not allowed to touch the floor. This prevents all violent motion as effectually as possible. The inventor we know not; the machine, stated to be used near Dresden, is employed by Dr. Piegnitz-

* Benjaminis Itinerarium. 8vo. Lugd. Bat. 1633. P. 69.

Dr. Hosack's edition of Thomas's Modern Practice.

Dr. Hosack has presented to the medical public, through the press of Collins and Co. a new and enlarged edition of that valuable work, Thomas's Modern Practice of Physic, from the sixth London edition.

This edition is considerably extended and improved both by the author and the editor, and will no doubt from its intrinsic merits, command a very extensive circulation, not only among the students, but also the practitioners of medicine in this country, as well as in Europe.

It is indeed a copious and elaborate manual of medical science, and is extended in this edition, including the appendix by the editor, to upwards of one thousand closely printed pages; the prescriptions are given both in Latin and English, and are equally numerous and valuable.

Dr. Thomas has dedicated this edition to Dr. Hosack.

The typographical execution of the work, does credit to the press from whence it issued.

Of the treatment of the Typhus form of Fever. By DAVID HOSACK, M. D. Extracted from the above.

The following extract from a report made to the governors of the New York Hospital, Sept. 1, 1819; giving a statement of the diseases of that institution, and of the treatment adopted, affords additional evidence of the validity of these opinions.

"During the period of my attendance, an ample opportunity has been afforded to the students, resorting to the hospital for instruction, of observing the *typhus form of fever*, which has been unusually prevalent in this city during the last three months, and of noticing the characteristic symptoms of that type of fever as totally distinct from the yellow fever, with which it has been identified by many physicians, under the general and fashionable appellation of *malignant fever*. The students have also witnessed the successful use of

b ood-letting and other evacuations in the first stage, and of yeast, porter, snake-root, the vegetable acids, vegetable nourishments, and frequent ablution with tepid vinegar and water in the more advanced stage of that disease, instead of the *mercurial treatment* so generally practised in many parts of the world, and especially in the United States. Indeed, I believe, that the typhus fever of our country, owes much of its malignity to the indiscriminate use of mercury. I say its indiscriminate use, for in some cases of fever, and in many other diseases, it is the physician's only resource. Even in typhus fever, under some peculiar circumstances, it has been prescribed with infinite benefit.

"Of the seventy-six cases of fever, of which forty were cases of typhus attended in many instances with symptoms of the highest malignity, seventy-four have been cured by the means before enumerated, without the prescription of a particle of mercury. Dysentery in like manner was treated by blood-letting, blisters, emetics, and saline cathartics, and a vegetable diet, instead of the customary treatment by calomel. Of twenty-one patients ill of this disease all recovered or were convalescent at the time I ceased to prescribe. Another observation I have frequently made, and which has been verified in the cases that have recently occurred in the hospital, is that those who are cured without mercury, recover in a much shorter time, than those who are treated by the usual mercurial course. This is not all,—they not only have a shorter convalescence, but they recover without that injury to the constitution, and that liability to rheumatism and other inflammatory diseases that we frequently observe in those who have undergone the operation of mercury."

Dr. Thomson, professor of surgery in Edinburgh, has published during the present year, "An account of the Varioloid Epidemic which has lately appeared in Edinburgh and other parts of Scotland; with Observations on the Identity of Chicken Pox, with modified Small Pox, in a letter to Sir

James M'Grigor." Forming with the appendix a large octavo volume of 400 pages.

Our readers will recollect that his general views on this subject, were published in the thirty-fourth number of the Eclectic Repertory, under nearly the same title as the above; and the intention of the present publication seems to be chiefly to support and confirm the opinions then advanced.

We are, from want of time and room, prevented from giving, at present, any thing more than the general result of his observations, so far as they tend to strengthen our confidence in the security obtained by vaccination against the devastating powers of small pox.

He observes that nothing had occurred in the epidemic as far as he had been able to perceive or learn, "to warrant the supposition, that the modifying or preventive powers of vaccination are weakened or exhausted by time." p. 34.

"Of the 310 individuals," he says, "whom I have seen affected with this epidemic, after having gone through the process of vaccination, one only has died; a result, he adds, which to me appears truly astonishing, when I reflect on the general severity of the eruptive fever, or the great diversities in the state of health, and in the constitutional tendencies of the individuals attacked by it; and on the circumstances often so very unfavourable to recovery, in which many of these individuals have been placed." p. 42, 43.

He observes, that there was nothing which occurred in the progress of the epidemic, that had been to him matter of so much surprize, as the number of persons who were affected with small pox for the second time, p. 51; and that a greater comparative mortality had been observed in cases acknowledged to be secondary small pox, than in those who had passed through the process of vaccination, p. 52. His correspondent, Mr. Bryce, also observes on this subject, "that there is on record more instances of persons suffering severely, nay fatally, from what was considered to be a second attack of small pox, than from small pox after what has been considered perfect vaccination." p. 60.

In page 114, Dr. Thomson observes, "every thing which I

learn with regard to the effects produced on the human constitution by the agency of cow pox inoculation tends to convince me, that not only the form and character of subsequent small pox are modified by it, but also that the qualities of the variolous contagion itself are often changed by it, in such a manner as to render this contagion incapable of being readily propagated by inoculation."

Small pox, modified by previous small pox infection, have appeared to me, says Dr. T. to be in general more severe than small pox modified by vaccination, and accordingly the number of deaths has also been comparatively much greater; for while natural small pox in the present epidemic have proved fatal, nearly in the proportion of 1 in 4, and secondary small pox in the proportion of 1 in 25; small pox after vaccination, has proved fatal in one instance only of above 330 cases which have now come under my observation. p. 201, 2.

Dr. Mudie of St. Andrews, in a letter to Dr. Thomson states, that the occurrence of modified small pox after vaccination, had done more to establish the practice in that neighbourhood than any thing that could have happened; "for every one," adds he, "was able to judge for themselves, in comparing the severity of the disease where no previous vaccination had been performed, and the mildness of that disease after vaccination." p. 244.

Dr. Thomson concludes his letter with these emphatic expressions. "I am unwilling that an evidence so favourable to vaccination as that which these pages contain, should be any longer withheld from the public, especially at a time when the small pox appears to be spreading epidemically over a great part of the known world. In this general prevalence of small pox, however, it is gratifying to find that the modifying power of vaccination is every where so triumphantly manifested, and that even its supposed failures, when accurately investigated, have hitherto only tended to confirm, in the minds of the well informed, the confidence which has been placed in the salutary effects of that practice, a practice becoming every day undeniably more worthy of the encouragement and support of those who have it in their power to recommend and enforce it."

Medical Convention.

Address of the Medical Convention of the United States to their Constituents and Fellow Citizens.

Capitol, City of Washington, January 8, 1820.

Gentlemen—The National Convention for forming a Pharmacopœia is on the eve of terminating its sittings, after bringing the important business, for which it assembled, to a happy and successful close.

It is really a subject of gratulation, both to the profession and to the people, that this work, which has been for two years in a preparatory state, should at length have reached maturity.

The individuals who conceived the design, and the incorporated bodies who furthered it, have the satisfaction of beholding a novel and interesting spectacle—that of the faculty, itself, by a spontaneous effort, and without public summons, or compensation, compiling a *Codex Medicamentarius*, or book of Rules and Directions, for selecting and compounding the articles employed in practice. The whole civilized world may behold a great and growing nation, speaking a similar language, possessing the same general laws, using an uniform denomination of value, and conforming to each other in the rules of preserving health, and of preparing remedies.

We have appointed a committee of five members to superintend the publication of the book we have compiled. It may be expected that they will execute their task with the smallest practicable delay. We recommend it to your perusal and patronage, as a performance upon which we have bestowed great labour, and the best abilities that we possess.

Under conviction, however, that a revision, from time to time, will be necessary, we have provided for the reception, at seasonable periods, of such amendments as experience shall prove to be requisite. The propriety of this arrangement, we trust, will be evident to every considering mind.

In addition to its professional character, we indulge a patriotic hope, that our Pharmacopœia may act as a bond of union, by drawing the inhabitants and governments of our country to a nearer assimilation with each other.

Done in, and by order of the Convention.

THOMAS T. HEWSON, Sec'ry. SAMUEL L. MITCHILL, President.

Rain that fell since January 1, 1820, *including snow and hail, when melted.*

1820.	Inches.	$\frac{1}{100}$ths
January 4 . .	0	.06
10 . .	0	.70
17 . .	1	.20
19 . .	0	.02
22 . .	0	.05
26 . .	0	.10
28 . .	0	.35
	2	$\frac{48}{100}$ inches monthly.
February 3 . .	0	.40
9 . .	0	.60
9 and 10 . .	0	.80
15 . .	0	.20
16 . .	0	.25
24 . .	0	.03
26 and 27 . .	0	.30
	2	$\frac{58}{100}$
March 5 and 6 . .	0	.09
7, 8, and 9 . .	0	.63
9 and 10 . .	2	.42
12 and 13 . .	0	.60
13 . .	0	.20
20 . .	0	.60
27 . .	0	.15
	4	$\frac{69}{100}$

Total rain in Philadelphia 9 $\frac{75}{100}$ in three months.

Vaccination.

By a late ordinance of the City Councils, *one* physician is appointed to vaccinate the Poor, who is also directed to distribute vaccine matter.

The Commissioners of the District of Southwark have also appointed *one* physician to vaccinate their Poor.

The Board of Commissioners of the Northern Liberties have also appointed a physician to vaccinate their Poor.

Statement of Deaths in the Town of Boston, from the 1st of January, 1819, to the 1st of January, 1820; specifying the Sexes, Ages and Diseases of the deceased Persons.

Deaths in each Month.	Males.	Females.	Totals.	AGES.	
January,	29	28	57	Under 1 Year	130
February,	22	30	52	From 1 to 2	91
March,	30	25	55	2 to 5	41
April,	33	17	50	5 to 10	38
May,	31	25	56	10 to 20	49
June,	17	16	33	20 to 30	125
July,	32	20	52	30 to 40	94
August,	41	53	94	40 to 50	72
September,	6	51	113	50 to 60	55
October,	43	40	83	60 to 70	45
November,	44	34	78	70 to 80	33
December,	35	31	66	80 to 90	16
Totals,	419	370	789	Total,	789

Those who died in town amount to	789
In addition to the above, those buried from the Alms-House and the Town's poor, whose ages and diseases are unknown, amount to	192
Still Born,	89
Total,	1070

The above mentioned Deaths were caused by the following Diseases and Casualties, viz.

Apoplexy,	8	Dropsy,	23
Burns or Scalds,	3	Drowned,	13
Cancers,	3	Dysentery,	12
Casualties,	8	Fever, Typhus,	108
Cholera Morbus,	11	Pulmonic,	46
Cholera Infantum,	7	Pleurisy,	3
Consumption,	174	Bilious,	10
Croup,	9	Nervous,	4
Cynanche Trachealis,	8	Scarlatina,	2
Debility,	9	Rheumatic,	6
Dyspepsia,	2	Malignant,	32
Diarrhœa,	1	Worm,	7
Diseases of the heart,	3	Yellow,	1
unknown,	178	Puerperal,	2
by drinking cold water,	2	Carried forward,	695

Brought forward,	695	Phthisis,	1
Fits,	15	Quinsy,	4
Hepatitis	6	Rickets,	1
Hæmorrhage,	5	Scorbutic,	1
Hernia,	1	Scarlatina Anginosa,	2
Hooping Cough,	3	Spasms,	5
Hydrocephalus Inter.	23	Still Born,	89
Infantile Diseases,	147	Sudden,	13
Influenza,	2	Suicide,	4
Insanity,	3	Suffocation,	1
Intemperance,	11	Teething,	7
Jaundice,	1	Tetanus,	1
Killed in a duel,	1		
Old Age,	29	Total,	1070
Poison,	1		

N. B. The above deaths include all who died in Town and in the Alms-House. There were also eighteen deaths in the Hospital on Rainsford's Island, including those who were sent from town and who arrived sick in vessels which were quarantined.

Published by order of the Board of Health,

JAMES ROBINSON, Secretary.

Boston, January 10, 1820.

Statement of Deaths in the City and County of New York, from the first of January, 1819, *to the first of January,* 1820; *specifying the Sexes, Ages and Diseases of the deceased Persons.*

Deaths in each Month.	Males.	Females	Totals	AGES.			
January,	130	120	250	Under 1 Year			847
February,	136	87	223	From 1	to	2	306
March,	111	88	199	2	to	5	188
April,	129	97	226	5	to	10	103
May,	116	80	196	10	to	20	157
June,	126	81	207	20	to	30	390
July,	144	117	261	30	to	40	383
August,	238	222	460	40	to	50	316
September,	185	174	309	50	to	60	200
October,	163	146	309	60	to	70	135
November,	156	110	266	70	to	80	93
December,	112	108	220	80	to	90	45
				90	to	100	10
				100	to	110	3
Totals,	1746	1430	3176			Total,	3176

The above mentioned Deaths were caused by the following Diseases and Casualties, viz.

Abscess,	13	Hæmorrhage,	9
Aneurism,	2	Hives,	68
Apoplexy,	67	Infanticide,	3
Asphyxia,	3	Inflammation of the Bladder,	2
Asthma,	8	of the Bowels,	43
Burned or scalded,	15	of the Brain,	24
Carbuncle,	1	of the Chest,	74
Cancer,	11	of the Liver,	28
Caries,	2	of the Stomach,	4
Casualties,	23	Insanity,	12
Catarrh	6	Intemperance,	35
Child-bed,	15	Jaundice,	8
Cholera Morbus,	42	Killed or murdered,	4
Colic,	5	Locked Jaw,	4
Consumption,	577	Lumbar Abscess,	2
Convulsions,	181	Marasmus,	11
Contusion,	2	Measles,	10
Cramp in the Stomach,	7	Menorrhagia,	2
Diarrhœa,	50	Mortification,	17
Drinking Cold Water,	6	Nervous disease,	4
Dropsy,	80	Old Age,	82
in the Chest,	24	Palsy,	40
in the Head,	119	Peripneumony,	28
Drowned,	61	Pleurisy,	14
Dysentery,	219	Pneu. typhodes,	10
Dyspepsia,	3	Quinsy,	10
Erysipelas,	2	Rheumatism,	4
Epilepsy,	9	Rupture,	1
Executed,	1	St. Anthony's Fire,	2
Fever,	66	Scirrhus of Liver,	5
Bilious,	4	Scrofula or King's Evil,	12
Remittent,	16	Scurvy,	1
Hectic,	1	Sore Throat,	11
Inflammatory,	5	Spasms,	9
Intermittent,	3	Spina Bifida,	2
Malignant,	23	Sprue,	22
Puerperal,	4	Still Born,	168
Putrid,	2	Strangury,	1
Scarlet,	5	Sudden,	28
Typhus,	163	Suicide,	27
Flux, infantile,	133	Syphilis,	13
Fracture,	1	Tabes Mesentrica,	137
Frozen,	1	Teething,	31
Gout,	2		
Gravel,	3		
Hæmoptysis,	5	Carried forward,	3013

Brought forward,	3013	Whooping Cough, . .	55
Tinea Captitis, ...	1	Worms, ...	17
Ulcer, ...	5		
Unknown, ...	85	Total,	3176

Of these, there were:	Men, ...	895	
	Boys, ...	851	
	Total Males, ...	——	1746
	Women, ...	703	
	Girls, ...	727	
	Total Females, . . .	——	1430
		Total,	3176

REMARKS.

The City Inspector respectfully reports to the board, a statement of the deaths in the City and County of New York for the year 1819, amounting to three thousand one hundred and seventy-six, being less by eighty-nine than what had taken place in the preceding year.

The city was unusually healthy until the month of August last, when the diseases peculiar to the warm season proved very fatal to children, particularly the dysentery and infantile flux, and continued their destructive course until moderated by a change of the atmosphere in October. Those two diseases alone, during four months, carried off three hundred and thirteen persons, principally children—considerably exceeding the number that died of those diseases in the same months of the preceding year.

In September, our city was unhappily visited with malignant fever. Its absence for fourteen years had banished our fears, and led us to repose in confidence on our security. Providentially, however, the prompt, intelligent, and energetic measures of our Board of Health, arrested its progress at an early period, and justly claim the gratitude of their fellow citizens. The total number of deaths of this disease was but twenty-three, who were interred within the city, and about twenty in its neighbourhood who had been previously removed by the Board of Health.

It must be highly gratifying to the benevolent mind, and to those whose humane labours have been so long directed to mitigate the ravages of Small Pox, to learn, that there has not been a single case of death by that disease reported in this city within the last year—a disease which has been, for so many ages, a

scourge to every part of the world; and has, at times, been particularly fatal here.

Whilst consumption and fever, generally, occupy a considerable space in these annual returns, it is consolatory to observe, that the former has not increased: and that fever, particularly Typhus, so fatal, so wide spread, and so unyielding to medical skill in Europe, has been much less malignant in this city the present, than in former years

GEORGE CUMING, City Inspector.

City Inspector's Office, 10th Jan. 1820.

Statement of Deaths, with the diseases and ages, in the City and Liberties of Philadelphia, from the 1st of January 1819, to the 1st of January 1820.

DISEASES.	Under 1 year	From 1 to 2	From 2 to 5	From 5 to 10	From 10 to 15	From 15 to 20	From 20 to 30	From 30 to 40	From 40 to 50	From 50 to 60	From 60 to 70	From 70 to 80	From 80 to 90	From 90 to 100	From 100 to 110	Total
Apoplexy	0	0	0	2	1	0	7	14	11	9	6	5	2	0	0	57
Abscess	0	0	1	1	0	2	4	1	1	1	1	0	0	0	0	12
Atrophy	17	4	8	2	1	1	0	2	1	4	3	1	0	0	0	44
Asthma	1	0	1	0	0	0	1	3	1	1	2	3	1	1	0	15
Aphthæ	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Aneurism	1	0	1	0	0	0	0	0	1	1	0	0	0	0	0	4
Angina Pectoris	1	0	0	2	1	0	2	4	1	1	1	0	0	0	0	13
Burns	0	1	4	2	0	0	1	3	3	1	0	0	1	0	0	16
Consumption of the Lungs	13	4	10	5	9	25	124	116	88	26	19	18	2	0	0	459
Convulsions	134	23	17	5	2	3	7	3	5	0	2	0	0	0	0	201
Casualties	6	2	0	1	2	2	8	7	6	0	2	2	1	0	0	39
Catarrh	17	0	4	2	1	0	0	1	0	1	1	2	0	0	0	29
Colic	3	0	0	0	0	1	2	2	0	2	1	2	0	0	0	13
Cancer	0	0	1	0	1	0	1	4	1	4	4	1	0	0	0	17
Caries	0	0	0	1	0	1	0	2	1	0	0	0	0	0	0	5
Cholera Morbus	147	78	20	1	0	0	4	2	2	3	2	1	0	0	0	260
Decay	0	1	1	0	1	0	0	0	3	0	3	1	3	0	0	13
Drunkenness	0	0	0	0	0	0	8	8	5	3	0	0	0	0	0	24
Debility	76	12	6	3	0	0	0	5	5	3	6	7	4	3	0	130
*D*iabetes	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2
Diarrhœa	14	11	6	2	2	0	5	8	7	3	3	4	0	1	0	66
Dysentery	10	10	1	1	0	0	4	2	1	6	1	0	0	1	0	37
Dropsy	7	8	7	3	7	2	14	18	22	21	15	6	1	0	0	131
in the Head	32	22	22	9	3	1	1	1	1	0	0	0	0	0	0	92
of the Breast	0	2	0	0	0	0	0	2	1	2	0	1	0	0	0	8
Dyspepsia	0	0	0	0	0	2	0	0	1	2	1	1	0	0	0	7
Drinking cold water	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	4
Drowned	0	0	0	3	2	1	8	6	4	1	0	0	0	0	0	25
Erysipelas	3	0	0	0	0	1	0	1	0	0	0	0	0	0	0	5
Eruptions	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	3
Epilepsy	1	1	2	1	0	0	1	3	4	0	0	0	0	0	0	13
Fever	5	1	4	2	1	3	5	2	5	4	0	1	0	0	0	33
Typhus	0	0	0	6	1	7	35	32	17	12	9	6	1	0	0	126
Bilious	0	2	1	0	3	6	11	13	8	4	0	1	0	0	0	49
Malignant	0	0	0	1	2	1	5	1	2	1	0	0	0	0	0	13
Intermittent	0	0	0	0	0	0	2	1	2	0	0	1	0	0	0	6
Remittent	1	6	5	2	0	0	8	13	2	5	1	0	0	0	0	43
Inflammatory	0	1	2	1	0	0	1	1	0	0	0	0	0	0	0	6
Scarlet	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
Nervous	0	0	1	0	2	0	2	2	0	0	0	0	0	0	0	7
Hectic	0	1	0	0	0	0	3	0	0	0	0	1	0	0	0	5
Puerperal	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	4
Gangrene and Mortification	5	1	3	3	0	0	1	2	1	2	3	2	2	0	0	25
Gout	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Hooping Cough	55	46	35	14	1	0	0	0	0	0	0	0	0	0	0	151
Hives	35	20	19	6	0	0	0	0	0	0	0	0	0	0	0	80
Carried over,	586	257	183	82	43	59	281	289	214	125	86	68	18	6	0	2297

	Under 1 year	From 1 to 2	From 2 to 5	From 5 to 10	From 10 to 15	From 15 to 20	From 20 to 30	From 30 to 40	From 40 to 50	From 50 to 60	From 60 to 70	From 70 to 80	From 80 to 90	From 90 to 100	From 100 to 110	Total
Brought forward,	586	257	183	82	43	59	281	289	214	125	86	68	18	6	0	2297
Hernia	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	3
Hæmorrhage	0	0	0	0	0	1	1	0	4	5	0	0	0	0	0	11
Hydrophobia,	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
Inflammation of the Brain	7	3	6	5	0	1	2	7	0	1	1	0	0	0	0	33
of the Lungs	30	14	12	3	3	2	9	9	8	7	11	5	2	0	1	116
of the Stomach	4	2	0	0	0	1	3	2	2	1	0	2	0	0	0	17
of the Bowels	15	3	2	2	2	1	7	11	5	2	1	3	0	0	0	54
of the Liver	2	1	0	0	0	0	1	6	4	5	1	0	0	0	0	20
of the Kidneys	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	3
of the Peritonæum	1	0	0	0	1	1	2	2	0	0	0	0	0	0	0	7
Jaundice	2	0	0	0	0	0	1	1	0	1	0	0	0	0	0	5
Insanity	0	0	0	0	0	2	6	8	5	5	1	1	0	0	0	28
Lethargy,	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Locked Jaw	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	3
Measles,	20	31	37	15	3	0	2	0	0	0	0	0	0	0	0	108
Old Age	0	0	0	0	0	0	0	0	0	0	1	12	19	14	6†	52
Prolapsus Ani	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Palsy	1	0	0	1	0	3	2	5	8	0	0	0	0	0	0	20
Pleurisy	2	0	2	0	0	1	2	2	1	4	0	0	1	0	0	15
Rheumatism	0	0	1	0	0	0	1	0	1	0	1	0	0	0	0	4
Still Born	145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	145
Sore Throat	5	6	6	7	0	0	0	1	1	0	0	1	0	0	0	27
Suicide	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	3
Stone	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	3
Scrofula	0	4	5	0	1	1	3	2	0	1	2	0	0	0	0	19
Spasm in the Stomach	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
Small Pox (natural)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Suffocation	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
Spina Bifida	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Syphilis	0	0	0	1	0	0	1	2	0	0	0	0	0	0	0	4
Sudden	5	0	0	0	0	0	5	8	4	6	4	0	1	0	0	33
Teething	2	8	3	0	0	0	0	0	0	0	0	0	0	0	0	13
Ulcers	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2
Worms	1	5	4	1	0	0	0	0	0	0	0	0	0	0	0	11
Unknown	21	0	6	3	0	2	10	8	2	4	1	1	0	0	0	58
Total,	851	334	269	121	54	76	345	364	262	171	113	96	41	20	7	3124

† One person of this number died between the age of 110 and 120.

NOTE. Of the above there were 795 males of twenty years and upwards, 824 under twenty years: of females, 616 of twenty years and upwards, 659 under twenty years; and 230 children, principally under one year, whose sex is unknown.

Since the last annual statement of deaths in this city, about 130 interments have been reported in the burying ground over Schuylkill, near the Market street bridge. This ground, previous to the last session of the Legislature, when it was vested in the Board of Health, had no legal owners, and persons buried there were not reported. It will also be observed that 108 deaths have occurred the last year from Measles, a disease which did not prevail in 1818.

The sextons of some of the burying grounds within the city, who had been found negligent in making complete returns according to the Health Law, have had their delinquency noticed by the Board, and their reports have during the last year, been made more punctually and correctly. These facts will account for the increased number of deaths reported in the present statement.

Deaths in Philadelphia, in each Month of the foregoing period.

	Adults.	Children.	Total.		Adults.	Children.	Total.
January,	120	72	192	October,	103	139	242
February,	106	89	195	November,	102	152	254
March,	141	118	259	December,	96	151	247
April,	117	97	214				
May,	120	84	204	*Total,*	1411	1713	3124
June,	121	138	259				
July,	122	216	338				
August,	136	296	432				
September,	127	161	288				

By order of the Board of Health,

JOSEPH PRYOR, Clerk.

Health Office, January 12, 1820.

Statement of Deaths in the City of Baltimore, from the first of January, 1819, *to the first of January,* 1820; *specifying the Sexes, Ages and Diseases of the deceased Persons.*

Deaths in each Month.	Males.	Females.	Totals.	AGES.		
January,	77	47	124	Under 1	Year	621
February,	60	56	116	From 1	2	252
March,	81	62	143	2	5	129
April,	97	72	169	5	10	147
May,	68	67	135	10	20	291
June,	74	47	121	20	30	357
July,	126	112	238	30	40	191
August,	196	120	316	40	50	117
September,	272	202	474	50	60	71
October,	138	105	243	60	70	39
November,	54	50	104	70	80	35
December,	60	44	104	80	90	27
				90	100	9
				100	110	1
Totals,	1303	984	2287		Total,	2287

The above mentioned Deaths were caused by the following Diseases and Casualties, viz.

Abscess,	1	Croup,	57
Apoplexy,	21	Decay,	88
Asthma,	5	Dropsy,	41
Burns,	2	in the Head,	27
Cancer,	4	Drowned,	31
Casualties,	17	Dysentery,	32
Child-bed,	18	Epilepsy,	4
Cholera Morbus,	258	Fever,	4
Colic,	4	Bilious,	73
Consumption,	272	Inflammatory,	2
Convulsions,	89		
Cramp in the Stomach,	3	Carried forward,	1053

Brought forward,	1053	Mortification,	26
Fever, Intermittent,	4	Murdered,	7
Malignant,	350	Old age,	75
Nervous,	2	Palsy,	7
Remittent,	2	Pleurisy,	41
Typhus,	84	Rheumatism,	5
Flux,	5	Scrofula,	2
Fistula,	1	Small Pox,	1
Gravel,	3	Sore Throat,	11
Gout,	1	Spasms,	3
Hæmorrhage,	3	Still Born,	105
Hives,	3	Sudden Death,	16
Jaundice,	2	by Drinking Cold Water,	8
Intemperance,	46	Suicide,	3
Inflammation of the Stomach,	1	Syphilis,	3
of the Lungs,	29	Teething,	27
of the Bowels,	1	Unknown,	91
of the Brain,	10	Whooping Cough,	78
Insanity,	1	Worms,	59
Locked Jaw,	2		
Measles,	116	Total,	2287

Of this aggregate of 2287, there were 571 coloured persons.

By order of the Board of Health,

P. REIGART, Secretary.

Statement of Deaths in the City of Charleston, S. C. from the 1st of October, 1818, to the 1st of October, 1819, inclusive; specifyin the Sexes, Ages and Diseases of the deceased Persons.

Deaths in each Month.	Males.	Females	Totals.	AGES.	
October,	46	44	90	Under 3 Years	305
November,	34	34	68	From 3 to 10	84
December,	20	26	46	10 to 20	61
January,	36	29	65	20 to 30	188
February,	25	27	52	30 to 40	156
March,	34	27	61	40 to 50	101
April,	38	22	60	50 to 60	78
May,	57	40	97	60 to 70	59
June,	47	38	85	70 to 80	20
July,	42	42	84	80 to 90	27
August,	100	45	145	90 to 100	9
September,	114	59	173	100 to 110	1
October,	46	20	66	110 to 120	3
Totals,	639	453	1092	Total,	1092

The above mentioned Deaths were caused by the following Diseases and Casualties, viz.

Abscess,	4	Fistula,	1
Accident,	18	Hæmorrhage,	1
Apoplexy,	11	Hooping Cough,	48
Asthma,	16	Inflammation of Brain,	3
Cancer,	4	of Lungs,	4
Catarrh,	21	Insanity,	6
Child-bed,	7	Intemperance,	7
Colic,	5	Liver Complaint,	9
Cholera Morbus,	2	Locked Jaw,†	14
Consumption,	144	Mortification,	4
Convulsions,	47	Old Age,	40
Cramp,	4	Palsy,	7
Croup,	15	Peripneumony,	2
Debility,	91	Pleurisy,	9
Diarrhœa,	53	Rash,	1
Drinking Cold Water,	1	Rheumatism,	3
Dropsy,	71	Rupture,	3
Drowned,	11	Scrofula,	3
Dysentery,	24	Sore-Throat,	5
Erysipelas,	1	Sore Leg,	4
Fever, Bilious,	19	Spasms,	13
Catarrhal,	26	Sudden Death,	4
Country,	8	Suicide,	4
Hectic,	1	Teething,	33
Intermittent,	2	Thrush,	7
Nervous,	16	Unknown,	6
Typhus,	16	Violence,	2
Worm,	35		
Yellow,*	176	Total,	1092

Of the above, there were: Males, 639
Females, 453
1092

Of whom there were: Whites, 492
Blacks, 600
1092

The cases of Consumption were generally strangers, who came to Charleston for the benefit of their health.

By order of the Board,

JAMES A. MILLER, Clerk.

Examined and found to be correct.

DANIEL STEVENS, Chairman.

*As the *Yellow Fever* had not ceased its ravages at the time of closing the foregoing statement, those who fell victims to that

† For remarks on *tetanus*, see next page.

calamity on and after the first day of October, 1819, must of necessity be numbered in the next year's report, which will, as it has already done, occasion erroneous and injurious impressions abroad in relation to the healthiness of the climate of Charleston. In their report of Deaths on the first of October, 1817, they state that 232 were caused by *Yellow Fever*—and in their statement of the next year, viz. of the first of October, 1818, they report 38 deaths by the *same disorder*, although not a solitary case of it occurred during the year, 1818. The citizens of Charleston should use their influence to alter an arrangement which operates so injuriously to the character of their city, by commencing their statement, as is done in all other cities of the United States and in Europe, on the *first day of January*, and closing it on the *last day of December*, in each year.

† It is a singular fact, and perhaps worthy of the attention of Medical Gentlemen, that more deaths were occasioned by TETANUS or LOCKED JAW, in the city of *Charleston*, during the last three years, than occurred in the cities of *Philadelphia*, *New York*, *Baltimore* and *Boston*, during the same period, as is shown by the following abstract:—

Deaths by Tetanus or Locked Jaw.

	1817.	1818.	1819.	*Totals.*
Charleston, ...	25	20	14	59
Philadelphia, ...	9	3	3	15
New York, ...	3	5	4	12
Baltimore, ...	2	3	2	7
Boston, ...	1	0	1	2
	15	11	10	36
Excess in Charleston, above the whole number in the four Cities,	10	9	4	23

LONDON BILL OF MORTALITY.

Christenings and Burials.

A general bill of all the Christenings and Burials, from Dec. 15, 1818, to Dec. 14, 1819, according to the report made to the king's most excellent majesty, by the Company of Parish Clerks of London, &c.

Christened in the 97 Parishes, within the Walls, 1,277; Buried, 1,149.

Christened in the 17 Parishes, without the Walls, 5,592—Buried, 4,143.

Christened in the 23 Out Parishes, in Middlesex and Surrey, 13,256—Buried 9,922.

Christened in the 10 Parishes, in the City and Liberties of Westminster, 4,175—Buried 4,014.

Christened—Males, 12,574—Females, 11,726—in all, 24,300.

Buried—Males, 9,671—Females, 9,557—in all, 19,228.

WHEREOF HAVE DIED—

Under two years of age,	4779
Between two and five,	1771
Five and ten,	826
Ten and twenty,	631
Twenty and thirty,	1577
Thirty and forty,	1990
Forty and fifty,	2095
Fifty and sixty,	1918
Sixty and seventy,	1600
Seventy and eighty,	1230
Eighty and ninety,	666
Ninety and a hundred,	144
A hundred and three,	1
Total,	19,228

Decrease in the burials this year, - - - 477

MEDICAL COMMENCEMENT.

UNIVERSITY OF PENNSYLVANIA.

At a Public Commencement, held on the 6th April, 1820, the following gentlemen received the degree of Doctor in Medicine, viz.

MASSACHUSETTS.

Names.	Subject of Thesis.
Dudley Atkins,	On Strangulated Hernia.
Fran. D. Wait,	Cholera Morbus.

NEW JERSEY.

Charles F. Matlack,	Tetanus.
Jonathan D. Price,	Abstinence.
George Green,	Muriate of Ammonia and Ferri.
Jeremiah S. English,	Scutellaria Lateriflora.
Marmaduke Burrough,	Uterine Hæmorrhage.

PENNSYLVANIA.

René La Roche,	Inflamed Testis.
David C. Skerrett,	Mod. Operandi of Mercury.
John S. Given,	Rheumatism.
Charles F. Wilstach,	Rest, as a remedy.
Robert E. Griffith,	Stomach and its functions.
Benjamin J. Pennock,	Hepatitis.
Isaac Thomas,	Phlegmasia Dolens.
Samuel G. Morton,	Popliteal Aneurism.
John L. Atlee,	Hydroceph. acutus.
Stewart Kennedy,	Dysentery.
Robert J. Clarke,	Iritis.
John Paxton,	Epilepsy.
Isaac Hays,	Sympathy.
David N. Mahon,	Venesection in Cancer.
Richard Dutton,	Tetanus.
John Elliott,	Ol. Terebinthinæ.
John G. Whilldin,	Dropsy.
John F. Lambe,	Rheumatism.
Jacob S. Rose,	Cynanche Trach.
Samuel P. Reese,	Ol. Terebinthinæ.
Isaac Davis,	Prussic Acid.
Job G. Oslere,	Ergot.
John R. Grigg,	Intermittent.

DELAWARE.

Names.	Subject of Thesis.
Thomas Shivers, jun.	Tetanus.
John M'Callmont,	Dysentery.

MARYLAND.

Francis M. Goldsborough,	Angina Pectoris.

VIRGINIA.

Robert P. Richardson,	Gonorrhœa.
Wm. B. Scott,	Cynanche Trach.
Le Roy Branch,	Tetanus.
Samuel W. Washington,	Diarrhœa.
George A. Spiller,	Hepatitis.
Amer. V. Payne,	Cholera Infantum.
Christ. B. Fleet,	Hereditary Predisposition.
Thomas J. Goode,	Puerperal Fever.
Alfred Eldridge,	Monarda Punctata.
Robert W. Withers,	Gastritis.
Luke White,	Cholera Infantum.
James May,	Hæmoptysis.
G. L. Corbin,	Aralia Spinosa.
Gustavus V. Jones,	Bilious Inflammatory Fever.
Abner Nash,	Anasarca.
James S. Gunnel,	Dysentery.
Wm. H. Finch,	Necrosis.
John T. Semple,	Hydrophobia.
Wm. Dew,	Stricture of Urethra.
Ph. D. Williamson,	Fever.
Turner Shell,	Scutellaria Lateriflora.
Wm. Jones,	Gastritis.
Peter F. Archer,	Liver and its functions.
Otway Bailey,	Rheumatism.
Isaac Williams,	Indigestion.
Wm. H. Worthington,	Tetanus.
John F. Brooke,	Inflammation of Knee Joint.
John C. Richardson,	Dyspepsia.

SOUTH CAROLINA.

Wm. C. Stewart,	Generation.
Andrew Bonner,	Chimaphilla Maculata.
George Cuthbert,	Phlegmasia Dolens.
Robert L. Armstrong,	Cynanche Trach.

Names.	Subject of Thesis.
Richard Anderson,	Amenorrhœa.
Ed. D. C. Jenkins,	Cold Bath.
Daniel D. Graves,	Pinus Sylvestris.
GEORGIA.	
Wm. F. Buchenan,	Acute Rheumatism.
James P. Screven,	Hepatitis.
Thomas Hamilton,	Cholera Infantum.
Samuel C. Oliver,	Progress of Medical Science.
KENTUCKY.	
Wm. Clarke,	Peritonitis.
John C. Boyd,	Typhus.
TENNESSEE.	
Wm. C. White,	Pneumonia.
Alexander M'Call,	Disease from Poisonous Milk.
Wm. M. Watkins,	Structure and functions of the skin
OHIO.	
Thomas Flanner,	Secondary Hæmorrhage.
MISSOURI.	
Joseph Brown,	Intermittent.

JOHN REDMAN COXE,
Dean of the Medical Faculty.

Spontaneous Combustion.

[From the Baltimore Chronicle.]

At my mills there was an iron kettle, used for holding ashes—it had remained with ashes from the 5th mo. to the 9th mo., at which time flaxseed oil was, by accident, spilled into the ashes; in about twenty-four hours the ashes were found to be on fire, and wishing to have it fully ascertained, whether it was the oil which occasioned the ashes to take fire, I filled a kettle with cold dry ashes, in which I poured a pint of flaxseed oil, and in twenty-fours I examined it, and found that, as far as the oil had penetrated, the ashes were in a state of combustion; and, on applying some shavings and chips of wood, it immediately caused them to blaze.

From an apprehension that many buildings have been consumed by fires from the foregoing cause, I have been induced to give publicity to the fact.

JOSEPH ATKINSON.

Ellicott's Patapsco Mills, 1 *mo.* 22*d*, 1820.

Royal Society, November 11th.

The conclusion of a paper was read, detailing the results of some further researches of Sir Everard Home on the properties of the blood. He has, he considers, discovered that there exist in that fluid globules which are smaller and of a different nature from those it is commonly supposed to contain. They were first observed by Mr. Bauer, whilst examining the layers composing an aneurismal tumour. They were seen in the coat in contact with the circulating blood, in the proportion of one to four, compared with the larger globules; but in the other layers they were more numerous, and in that which have been first formed they existed in the proportion of four to one. Mr. Bauer estimates their size $\frac{1}{2500}$ of an inch. Crystals of muriate and phosphate of soda, and phosphate of lime, were found in making a section of another aneurismal tumour. Sir Everard Home considers that those globules existed originally in the serum; the globules being to be seen only after the blood has coagulated. In coagulated lymph, formed during intense inflammation, these globules were found mixed with a few colourless blood-globules. They were also found in great numbers in the upper firm coat of the buff of the blood, while the lower and softer parts consisted chiefly of red blood-globules. He proposes to call the new globules by the name of globules of *lymph*, to distinguish them from the red blood-globules. Sir Everard Home has also found, that the quantity of carbonic acid gas evolved from buffy blood under an exhausted receiver, is much less than that from healthy blood, and that by far the greatest quantity of this gas was yielded by blood drawn from a healthy person an hour after a full meal. Both lymph globules and blood globules were found in the mucus of the pylorus and duodenum. In chyle, the size of the globules is various.—*Med. and Phys. Jour., April*, 1820.

Observations respecting the Pathology of Hooping-Cough.

We usually comprise in the *Report of Diseases*, such of the chief results of our practical observations of the current period as are of general application; but we are now induced to give,

in a distinct manner, an account of some which have just occurred to us on opening the body of a subject of hooping-cough, from their seeming to possess a remarkable degree of interest.

A boy, three years old, had suffered hooping-cough about a month, not very severe in degree, and unattended with much difficulty of respiration, excepting for a short time after each fit of coughing. He was a strong, well made child, and had previously enjoyed good health. At the time above indicated, he became affected with great difficulty of respiration, and very severe cough, attended with extraordinarily loud hooping, and long-continued inspiratory efforts. The pulse varied during the two or three ensuing days from 120 to 150; the tongue was clean. There was a moderate degree of expectoration of mucous matter. Leeches, tartar emetic, calomel, and a blister on the chest, had been employed by the attending medical practitioner. On the fifth day after the occurrence of the latter symptoms, in the evening, we first saw the patient. But little hopes of his survival were entertained. The pulse was 170, moderately strong; the countenance somewhat tumid and livid; the breathing extremely laborious, and attended with a rattling sound similar to that heard in croup. The nostrils were widely dilated during inspiration. The fits of coughing were said to be very severe, and attended with intense and long-continued hooping; and the mother said, it appeared as if the air was prevented being expelled from the lungs by some obstacle, the dilatation of them was of such long duration. He died in the ensuing morning. The following were the observations made on dissection, that seem to be peculiarly interesting.

The posterior surface of the epiglottis was of a palish bright-red colour, especially towards its base; the right superior ligament of the glottis was about four times the usual thickness, apparently from inflammation, and its tunic was of a bright-red colour; the left superior ligament was much smaller, apparently only about two or three times the usual size; they both adhered to the lower ligaments, so as to efface the openings into the ventricles of the larynx by false membranes. The

ventricles themselves were full of serous fluid. The lower ligaments were also much thickened, and their mucous tunic of a florid hue. Below this, the whole of the larynx was apparently healthy. At about the third or fourth circle of the trachea, the mucous membrane of this organ began to assume a florid hue, and there was extravasation of blood in it, but no coagulated lymph present. These appearances increased in intensity as we proceeded downwards, and the two lower lobules of the left, and the lower lobule of the right lung, were in a state of extreme sanguineous congestion. The enveloping pleura was of nearly the natural hue, and there was no preternatural effusion of fluid in the chest. The mucous membrane of the bronchiæ, corresponding to these portions of the lungs, was of a very deep-red colour, and much thickened from the increased vascularity, but there was no appearance of effused coagulable lymph. Every thing indicated that the affection of the trachea and lungs was of recent date; whilst that of the parts about the glottis was evidently more chronic, and wholly distinct from the former.

It would be wrong to generalize the application of these observations; but we hope they will induce our readers to examine very particularly the state of the upper part of the larynx in the subjects of hooping-cough; and we should feel much gratified, if any of them will favour us with the results of their observations.—*Ib.*

Prize Question.

The following is proposed by the Society of Sciences of Harlem. The essays should be sent to the Secretary before the 1st of January, 1821.

" What advantages has medicine derived from the reformation and extension of chemistry since the time of Lavoisier, in making us better acquainted with the chemical agency of the medicines usually employed for the cure of several diseases of the human body; and what means should be taken in order to acquire a solid knowledge, useful in medicine, of the hitherto-unknown chemical agency of several medicines." *Ib.*